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Ur III Economy and Bureaucracy: The Neo-Sumerian Cuneiform Tablets in the Hood Museum of Art, Dartmouth College (I)

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This article examines 15 cuneiform tablets from the late 3rd millennium BC from southern Mesopotamia. As administrative tools of the Ur III state bureaucracy, the texts are primarily concerned with the administrative and economic affairs of the central authority, but they also offer important information on the individuals living in the Ur III state and their different roles within the state's bureaucratic structures.

Keywords: Ur III, Bureaucracy, Puzriš-Dagan, Umma, Hood Museum

Introduction

There are 30 cuneiform tablets dating to the Ur III period kept in the Hood Museum of Art at Dartmouth College, Hanover, NH (United States of America).[1] 15 of these tablets (one with an envelope) are published here. To keep this article within an acceptable length for publication, the remaining 15 tablets in the collection will be translated and analyzed separately in a second part of the study.[2]

The majority of the tablets in this article (**Texts 2**, **5–6**, **8–10** and **12–14**) were donated to the museum by the Dartmouth Scientific Association in 1923. **Text 1** was donated by Milton S. Yondorf in 1943, while **Texts 3**, **4**, **7**, **11** and **15** were collected or otherwise acquired in the Middle East by Edgar James Banks between 1898 and 1921, and subsequently purchased by the museum in 1923

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[1] This article was written in the autumn/winter of 2018 during a research visit to the Institute for the History of Ancient Civilizations (IHAC) at the Northeast Normal University in Changchun, China. I would like to thank Professors Zhang Qiang and Sven Günther at IHAC for all their kind support, and for allowing me unrestricted use of the Institute's excellent resources during my visit. I am also most indebted to Drs. Eric Cripps and Christina Tsouparopoulou, for reading and commenting on an earlier version of the article. Any remaining mistakes in the article are my responsibility alone.

The article follows standard conventions used in editions of Ur III texts, including the use of italics for Akkadian proper names in transcriptions and indices. Standard names of rulers and cities (e.g. Šu-Suen, Puzriš-Dagan) do not appear in italics in the discussions outside the editions of the texts. All references to cuneiform texts are according to the abbreviations used by the *Cuneiform Digital Library Initiative* at https://cdli.ucla.edu. Units of weight, capacity, length, surface and volume have been translated and converted to the metric system according to standard conventions available at http://cdli.ox.ac.uk/wiki/.

[2] Museum numbers: 23.1.7175, 23.1.7179, 23.1.7180, 23.1.7182, 23.1.7183, 23.1.7184 (Foster 1979 17), 23.1.7187, 23.1.7189, 23.1.7193, 23.1.7203, 23.2.7210, 23.2.7211, 23.2.7214, 23.2.7216, 52.14.12887 (Foster 1979, 13).

through William Hamilton Wood, who later would become Professor of Biblical History and Literature at Dartmouth College.

The Ur III tablets in The Hood Museum of Art are principally unpublished, although Benjamin R. Foster made available in 1979 hand copies and some cursory notes of **Texts 1**, **5**, **10**, **11** and **14** in this article, and museum numbers 23.1.7184 and 52.14.12887 of the remaining tablets in the collection. Due to other work commitments at the time, I was only able to spend a limited time working on the collection in the museum, and the texts have therefore primarily been studied at a later stage from digitized scans and (when available) Foster's hand copies. I am very grateful to The Hood Museum of Art for allowing me to publish the tablets here.

The purpose of this article, and its forthcoming sequel, is not merely to make the Hood Museum of Art's collection of Neo-Sumerian cuneiform tablets available for study and analysis by the wider academic community (including scholars outside the narrow field of Ur III studies and Assyriology/Sumerology), but also to offer insights into the administrative and economic structures, as well as the archival procedures, of one of ancient Mesopotamia's earliest and most well-documented bureaucratic states. The texts have been assigned to establish contexts and eclectic economic analysis of the Ur III state. Accordingly, the more usual commentary accompanying its publication does not follow each text. Rather I have sought to interpret a text within its administrative and socio-economic context.

Concordance

Museum Number	**Text No.**	**Publication**
23.1.7177	**2**	
23.1.7178	**12**	
23.1.7181	**10**	Foster 1979 6
23.1.7185	**8**	
23.1.7186	**14**	Foster 1979 5
23.1.7188	**6**	
23.1.7190	**9**	
23.1.7192	**5**	Foster 1979 9
23.1.7208	**13**	
23.2.7212	**3**	
23.2.7213	**7**	
23.2.7215	**4**	
23.2.7217	**11**	Foster 1979 2
23.2.7218	**15**	
43.5.8874	**1**	Foster 1979 8
43.5.8875	**1**	

Catalogue

No.	Mus. No.	Prov.	H × W	Date	Contents	Remarks
1	43.5.8874 43.5.8875	PD	32×30 51×39	Šulgi 45/-/-	Receipt of 2 cows transferred by *Nasa* to *Atida*, the scribe and son of *Itraq-ilī*, according to a previously written sealed document by *Nasa* kept by *Atida*.	Tablet + Envelope, Sealed Foster 1979 8
2	23.1.7177	PD	39×32	Šulgi 44/vi/13	Large and small livestock from various individuals across the state as a muku delivery.	
3	23.2.7212	PD	26×23	AS 2/iii/11	Milk-fed lambs and kids received by Šulgi-ayya-mu.	
4	23.2.7215	PD	44×42	ŠS 6/-/-	Barley received by *Bēlī*-azu, brought to the place of *Nūr-Suen*.	Sealed by *Nūr-Suen*, scribe and son of of *Idi-erra*.
5	23.1.7192	Um	38×40	AS 1/viii/-	Barley allotments at the beginning of the year for the foremen of female millers, as well as the salaries for three (male) craftsmen.	Foster 1979 9
6	23.1.7188	Um	45×45	AS 3$^{?}$/-/-	Textiles from I-kala, received by Lugal-urrani, the man of the governor.	Sealed by Lugal-urrani, servant of Ninegal.
7	23.2.7213	Um	39×39	AS 7/ix/-	Small livestock, dead by natural causes, from Lu-Utu, Lu-kala received.	Sealed by Lu-kala, scribe and son of Ur-E'e.
8	23.1.7185	Um	60×42	AS 7/-/-	Female work days in the city brewery, under various foremen. From Šeš-saga, Kugani received, within the bala obligation.	Sealed by Kugani, scribe and son of Ur-Šulpae.
9	23.1.7190	Um	49×37	AS 8/-/-	Ghee from Atu, Lu-Ninšubur received, within the bala obligation.	
10	23.1.7181	Um	38×40	ŠS 2/-/-	Label for container with documents of Šarakam, the šabra administrator.	Foster 1979 6
11	23.2.7217	Um	24×28	ŠS 6/ii/20	Messenger text listing provisions for various messengers, of beer, bread, onions, oil and soda ash.	Foster 1979 2
12	23.1.7178	Um	35×29	ŠS 7/-/-	Repayment by Enlila, of barley deficit carrying forward from previous year(s). Lu-dingira, the šabra administrator, received.	
13	23.1.7208	Um	27×21	-/iii/28	Messenger text listing provisions for various messengers, of beer, bread, onions, oil and soda ash.	
14	23.1.7186	Um	52×20	-/-/-	Calculation of work days required by low status male workers for maintenance work and a variety of heavy agricultural tasks on the field Ageština.	Sealed by Ur-amma, scribe and son of Nasilim. Foster 1979 5
15	23.2.7218	???	41×36	-/-/-	Wool from the store house added to the "debits" of the official Ea.	Copy (gaba-ri)

Editions

Texts from Puzriš-Dagan

Text 1

Museum Number: 43.5.8874 (tablet) / 43.5.8875 (envelope)
Provenience: Puzriš-Dagan
Measurements (H × W): 32 × 30 mm (tablet) / 51 × 39 mm (envelope)
Date: Šulgi 45 / - / -
CDLI nos. P112116
Gift to the museum by Milton S. Yondorf, 1943

Tablet

Obv.

1	2(diš) ab_2	**1**	2 cows,
2	mu $kišib_3$ $na\text{-}sa_6$	**2**	(returned/transferred) as per the sealed document (of) *Nasa*,
3	ki a-ti-da-ka / $mu\text{-}gal_2\text{-}am_3\text{-}še_3$	**3**	(which) is kept in the place (= archive) of *Atida*.
4	$kišib_3$ a-ti-da	**4**	The seal (of) *Atida*

Rev.

5	ib_2-ra	**5**	was rolled.
6	blank space	**6**	———————
7	mu $ur\text{-}bi_2$-˹lum˺/^{ki} ba-hul	**7**	The year (when) the city of *Urbilum* was destroyed. (Š 45)

Envelope

Obv.

1	2(diš) ab_2 mu $kišib_3$ˈ $na\text{-}sa_6$-ka (= KI)	**1**	2 cows, (returned/transferred) as per the sealed document of *Nasa*,
2	ki a-ti-da-ka	**2–3**	(which) is kept in the place of *Atida*.
3	$mu\text{-}gal_2\text{-}am_3\text{-}še_3$		
4	seal	**4**	———————
5	$kišib_3$ a-ti-da «X» ib_2-ra	**5**	The seal (of) *Atida* was rolled.

Rev.

6	blank space	**7**	———————
7	˹mu˺ [ur]-bi_2-lum^{ki} / ba-hul	**8**	The year (when) the city of *Urbilum* was destroyed. (Š 45)
8	seal	**9**	———————
9	blank space	**10**	———————

Seal

1	a-ti-da	**1**	*Atida*,
2	dub-sar	**2**	the scribe,
3	dumu it-ra-aq-/i_3-li_2	**3**	the son of *Itraq-ilī*

This is a rather unusual example of inscribed and sealed clay envelope wrapped around an inscribed tablet. Less than 1% of the recovered tablets from Puzriš-Dagan have been published as having been encased in envelopes.[3] The surrounding envelope has been cracked in recent times and a portion of the envelope has been removed to reveal the enclosed document.

The tablet and its envelope form a receipt issued by *Atida* to be kept by *Nasa* – in all likelihood the well-known chief official in Puzriš-Dagan between Šulgi 42 and Amar-Suen 2 (see e.g. Tsouparopoulou 2013a) – verifying that *Nasa* has returned/transferred two cows to the office of *Atida*. Aside from being enclosed in an envelope, the receipt is highly unusual in its reference to a previous correspondence between *Atida* and *Nasa*, to which the transaction in the text is connected, and the administrative context of the document deserves some further consideration.

Clay envelopes were typically (but not exclusively) used for loan agreements or other legal transactions in the Ur III period, and it is generally assumed that the original agreement, which was sealed by the recipient of the transferred commodity and kept as evidence by the party delivering the commodity, would be destroyed when the matter eventually was settled and the commodity returned to the claimant. Not only would this make sense from an administrative point of view, but this interpretation also appears to be supported by the numerous loan tablets or legal texts stating that after repayment "the sealed document is to be destroyed" (kišib$_3$ zi-re-dam).[4] However, this understanding would, at least to some degree, render it unnecessary to issue a specific document verifying/confirming the return/transfer of an outstanding commodity. For this reason, Piotr Michalowski (1983, 195), who studied a text currently kept in the archives of the National Geographic Society comparable to the text edited here, suggested that receipts verifying the repayment of an outstanding commodity only would exist if the original agreement somehow had been lost by the claimant. Since the original agreement was unavailable for destruction at the time of the repayment, the claimant would be required to issue a specific receipt embossed with his seal to the obligated party, and this document would then annul the original agreement (if it were to re-appear). This is a reasonable interpretation of this text type, and it is certainly possible that our tablet represented such a receipt/annulment. However, Piotr Steinkeller has argued (2002, 126–127, n. 2; see also Steinkeller 1982, 644), that when a loan was repaid and the original loan tablet was missing or unavailable for destruction, a different type of administrative record was issued to the debtor with the declaration: kišib$_3$-ba-ne-ne u$_2$-gu ba-de$_2$ al-pad$_3$ zi-re-dam "their sealed document has been lost; when it is found, it is to be destroyed" (referring to *TMH n.F. 1/2* 47). This kind of record, obviously to be kept by the debtor as evidence of the debt being cleared, would effectively invalidate the original (and missing) loan contract. Note, however, that it is possible that the kišib$_3$ "sealed document" in the expression referred to by Steinkeller (who read it as dub "tablet"), which is also attested in *AUCT* 3 488 and *OrSP* 47–49 411, should be understood as "seal" (another meaning of kišib$_3$), and that these expressions refer to lost (and subsequently found) seals destined for destruction (see e.g. Kleinerman 2011, 40). Why recovered seals would have to be destroyed, rather than simply returned to their owners, remains unclear.

[3] For an overview of the administrative function of envelopes and clay casings in Puzriš-Dagan in the Ur III period, see Tsouparopoulou 2015, 56–60. For the technical aspects of enclosing tablets in clay envelopes, see Taylor 2011, 19–20.

[4] See, e.g., Woods 2012, 47–48; Steinkeller 2002, 126–127, n. 2; Falkenstein 1957, 175, or – most recently – Tsouparopoulou 2015, 53, with further references. Cf., however, Garfinkle (2004, 19–21), who convincingly has argued that it was the destruction of the sealed envelope around the loan tablet (rather than the destruction of the tablet itself) that would legally annul the loan (see also Widell 2008).

Moreover, the original agreement between *Nasa* and *Atida* was not lost or in any way missing. On the contrary, lines 2–3 specifically state that *Atida*'s receipt of the two cows was according to the sealed document of *Nasa*, and that this record was kept in *Atida*'s possession (mu kišib$_3$ na-sa$_6$(-ka) ki a-ti-da-ka mu-gal$_2$-am$_3$-še$_3$), in other words, in his archive.

An alternative interpretation of our tablet could therefore be that the two cows transferred by *Nasa* to *Atida* only represented a partial return of an arrangement that included a larger number of animals. The original agreement, kept by *Atida*, could not be destroyed, because the matter would not actually be settled with the transfer of these two cows. Such an understanding of our text would perhaps be supported by the conclusion reached by Steven Garfinkle (2004, 20–21), who argued that Ur III loans were, in all likelihood, issued for longer durations than we ordinarily assume. According to Garfinkle, most loans were repaid based upon the fiscal capacity of the debtor, and genuine defaulting on loans occurred only when the debtors became unable to pay the interest due on their loans. With this in mind, it is at least possible that the Hood Museum tablet edited here represents the receipt of a partial transfer of a larger (long-term) commitment on *Nasa*'s part.

It is worth noting in this context that *Atida*, the scribe and son of *Ítraq-ilī*, has been associated with the ancient site Irisagrig (see *BDTNS* no. 167821 [eBay auction], *Nisaba* 15/2 255, 379, 366, 409 and 1102),[5] which in all likelihood was located on the Tigris river some 60–70 kilometers upstream from Umma.[6] In other words, if *Nasa*'s transfer of two cows did indeed settle some arrangement specified in a tablet kept by *Atida* in Irisagrig, it would hardly have been possible for the Puzriš-Dagan official *Nasa* to verify the destruction and annulment of this tablet, which in turn might explain – at least in part – the administrative necessity of our enclosed receipt. More importantly, the transfer of the receipt from Irisagrig, where one might assume that it was sealed by *Atida* and therefore also written, to the office of *Nasa* in Puzriš-Dagan, would explain why the receipt was enclosed in an envelope in the first place, since the envelope would protect the inscription of the tablet during its transport (see Tsouparopoulou 2015, 57).

Regardless of all these attempts at interpreting and understanding the administrative *Sitz im Leben* of our text and its transaction, it should be stated that as a sealed receipt, and irrespective of the original purpose and background of its animal transfer(s) to *Atida*, the text would always serve the obvious purpose within *Nasa*'s own organization, which was to provide an explanation and justification for the absence of two of its cows in the pens (see e.g. Van De Mieroop 1997).

Seal: The seal impression depicts three figures. On the right side is the seated deity, with the crescent symbol in front of it, indicating that the deity should be identified as the moon god Nanna/Suen. In front of the deity is the worshipper with his hands raised in adoration, followed by a man carrying offerings on a table. The same seal impression is also attested on *Nisaba* 15/2 255 from Šu-Suen 3/iii and *BDTNS* no. 167821 (eBay auction) from Šu-Suen 5/xi. From Šu-Suen 6, *Atida* is attested with a different seal dedicated to king from Šu-Suen (*Nisaba* 15/2 379, 366, 409 and 1102)

For a hand copy of the tablet, and a transliteration of the envelope, see Foster 1979.

[5] Note also *TCL* 2 5525 (also from Šulgi 45), demonstrating how an official named *Atida*, along with various other Ur III officials, supplied slaughtered (ba-uš$_2$) bovines to Puzriš-Dagan and *Nasa*, who in the text delivered them to the official Enlila.

[6] See Manuel Molina (2013), who tentatively identified Irisagrig with Robert McC. Adam's site no. 1056 in *Heartland of Cities* (1981), approximately 15 kilometres northeast of Puzriš-Dagan, which in turn in all probability was located on a branch of the Euphrates river a short distance southeast of Nippur (see Steinkeller 2001). Note, however, Maurizio Viano (2019), who most recently has argued for the identification of Irisagrig with Tell al-Wilaya, which would place the site some 30 kilometres northeast of the ancient course of the Tigris river, and approximately 45 kilometres from Puzriš-Dagan as the crow flies.

Text 2

Museum Number:	23.1.7177
Provenience:	Puzriš-Dagan
Measurements (H × W):	39 × 32 mm
Date:	Šulgi 44 / vi / 13
CDLI no.	P273921

Gift to the museum by the Dartmouth Scientific Association, 1923

Obv.

1	3(diš) gu_4 2(diš) ab_2	**1**	3 oxen, 2 cows,
2	2(u) 2(diš) udu 1(u) la_2 1(diš*tenû*) u_8	**2**	22 rams, 9 ewes,
3	6(diš) $maš_2$ 2(u) ud_5	**3**	6 bucks, 20 does (and)
4	1(diš) u_8 $ba\text{-}uš_2$	**4**	1 ewe, dead.
5	ki $nir\text{-}i_3\text{-}da\text{-}gal_2\text{-}ta$	**5**	From Nir-idagal,
6	$giri_3$ ar-ši-ah $aga_3\text{-}˹us_2˺$	**6**	via *Arši-ah*, the royal guard.
7	1(diš) gu_4 1(u) 3(diš) gukkal	**7**	1 ox (and) 13 fat-tailed (sheep),

Rev.

8	i-la-a mar-˹tu˺	**8**	(from) Ilayya, the nomad.
9	1(diš) $sila_4$ niga ˹$ensi_2$˺ […] (= PA.TE.[SI])	**9**	1 barley-fed male lamb, (from) the city governor of …
10	1(diš) amar maš-da_3 dam [nam]-/zi-tar-˹ra˺	**10**	1 young gazelle, (from) the wife of Namzi-tara.
11	4(diš) udu niga 1(diš) $sila_4$ niga	**11**	4 barley-fed rams (and) 1 barley-fed male lamb,
12	$ARAD_2$-mu	**12**	(from) ARAD-mu.
13	blank line	**13**	———————
14	mu-ku_x(DU) iti a_2-ki-ti	**14**	A muku delivery (in) the month of the Akiti festival. (vi)
15	mu si-mu-ru-um^{ki} u_3 / lu-lu-bu^{ki} $a\text{-}ra_2$ 1(u) la_2 1(diš*tenû*)-kam / ba-hul	**15**	The year (when) the city of *Simurum* and the city of *Lulubu*(*m*) were destroyed for the ninth time. (Š 44)

Left Edge

16	u_4 1(u) 3(diš)-kam	**16**	The 13th day.

This tablet is listing various kinds of large and small livestock, including a dead ewe, from city governors or other high-level officials from around the state, as the muku delivery on the 13th day of the month of the Akiti festival in Šulgi's 44th year as a king. Note that the scribes in Puzriš-Dagan did not specifically distinguish between slaughtered animals ($ba\text{-}uš_2$) and animals that had died by natural causes (ri-ri-ga), and – in contrast to e.g. ancient Girsu or Umma (see **Text 7**) – the designation $ba\text{-}uš_2$ was used for all dead animals in Puzriš-Dagan, and the cause of death of these animals can therefore only be deduced from the different contexts in the texts (Steinkeller 1995, 55; Tsouparopoulou 2013b, 153). Among the many examples of similar provincial provisions of animals to Puzriš-Dagan, see e.g. *BPOA* 6 29 or *BIN* 3 517.

Line 8: The translation of mar-tu as “nomad” or “mar-tu shepherd” is in this context preferable to the more common “Amorite” (see Cripps 2019, 57 n. 12). Nomads were employed as shepherds, but were not necessarily Amorites, and the word mar-tu can be understood as either.

Lines 9–10: The delivery of an animal from a wife (dam) in line 10, and the reference to a city governor (ensi$_2$) in the preceding line, would perhaps suggest that Namzi-tara was a city governor as well.[7] The short tenure of the Nippur governor named Namzi-tara, known primarily from his seal impression, only started some time at the end of Amar-Suen’s reign (see Allred 2013, 117–118, n. 6), and if our Namzi-tara indeed was a city governor in the Ur III state, we are more likely dealing with the governor with this name of the city of Gudua, who is attested to have delivered animals to Puzriš-Dagan (sometimes as muku deliveries) and also received animals from the city, from Šulgi 45/vii/9 until Amar-Suen 1/viii (see Owen 1993, 134–143). If this identification of Namzi-tara is correct, the text edited here would represent our earliest known reference to this city governor. Although the city of Gudua is not specifically mentioned in the text, a reasonable implication of the identification of Namzi-tara would have to be that the length of his tenure as the governor of Gudua should be extended by more than a year, to Šulgi 44/vi/13, which in turn would push back the latest possible date for Namzi-tara’s predecessor Ur-sagamu (see Owen 1993, 138).

The important Sumerian city of Gudua should in all likelihood be identified with modern *Tell Ibrahim* on the eastern branch of the Upper Euphrates, approximately 40 kilometers northeast of Babylon (Edzard and Farber 1974, 66–68).

Text 3

Museum Number:	23.2.7212
Provenience:	Puzriš-Dagan
Measurements (H × W):	26 × 23 mm
Date:	Amar-Suen 2 / iii / 11
CDLI no.	P273941
Museum purchase, 1923	

Obv.

1	4(diš) sila$_4$ ga	**1**	4 milk-fed male lambs,
2	1(diš) kir$_{11}$ ga	**2**	1 milk-fed female lamb,
3	2(diš) ˹munus˺aš$_2$-gar$_3$˺ ga	**3**	(and) 2 milk-fed female kids,
4	u$_3$-tu-da	**4**	(they are) newborn.

Rev.

5	u$_4$ 1(u) 1(diš)-kam	**5**	The 11th day,
6	^{d}šul-gi-a-a-mu	**6**	Šulgi-ayya-mu,
7	i$_3$-dab$_5$	**7**	received.
8	iti u$_5$-bi$_2$-gu$_7$	**8**	The month of the eating of the Ubi-bird. (iii)
9	mu ^{d}amar-^{d}suen / lugal-e ur-bi$_2$-lum^{ki} mu-hul	**9**	The year (when) divine Amar-Suen, the king, destroyed the city of *Urbilum*. (AS 2)

[7] For the movable property and administrative household of the governor’s wife as an independent economic entity in the Ur III administration, see now Stępień 2012, 26–27.

Left Edge

10 7(diš)	**10** (In total): 7 (small cattle)

The tablet lists seven suckling lambs and kids, all described as newborn (u_3-tu-da) and received by the Puzriš-Dagan official Šulgi-ayya-mu, on the 11th day of the third month in Puzriš-Dagan. On the left edge is the number 7, which is a (correct) reference to the total number of animals in the text.

Šulgi-ayya-mu is a well-known official associated with the so-called naGaBtum organization in Puzriš-Dagan, which regularly handled young or newborn animals (Cooper 1985, 99–100; Hilgert 2003, 43–53; Liu Chanyu 2017, 236–255).

Lambs and kids would in all likelihood have been weaned at 1–3 months of age, after which we may assume that the ewes and does would be milked for another couple of months. Sheep's milk (although both nutritious and delicious) was not important in the public economy of the Ur III state. By tradition, the sheep's milk constituted a nonspecific and informal part of the compensation for the shepherds of these herds, and sheeps's milk was therefore not recorded in the administrative texts (the so-called "herdsman's share," see further under **Text 9**). It should also be noted that there is genetic incompatibility between good wool sheep and good milk sheep, and good wool sheep will always be poor milk sheep and *vice versa*. Considering the significant economic significance of wool production in ancient Mesopotamia, especially in the provincially managed herds outside the royal livestock center Puzriš-Dagan, it is reasonable to assume that most sheep within the public sector of the economy were rather poor milk animals.

As mentioned above, the suckling animals in our texts are referred to as newborn (u_3-tu-da). However, the third month in Puzriš-Dagan (iti u_5-bi_2-gu_7) would roughly correspond to May/June, and it seems likely that these lambs and kids were in fact born a few months before the text was written, sometime in the early spring. Ethnographic data from southern Iraq in the early 1970s has indicated that most small livestock were born either in September to November or from the end of January through March (Ochsenschlager 1993, 34), and it seems likely that these animals, who were not yet weaned, were born sometime in this later period. It should also be noted that the livestock managed in Puzriš-Dagan, which were destined for elite consumption and cult observances within the Ur III state, primarily came from the peripheral areas north- and northeast of Babylonia along the Zagros range (Steinkeller 1991, 27–32), and studies of the reproductive patterns in sheep and goats in these areas strongly support an early spring birth season (see Widell, forthcoming).

Text 4

Museum Number:	23.2.7215
Provenience:	Puzriš-Dagan
Measurements (H × W):	44 × 42 mm
Date:	Šu-Šuen 6 / - / -
CDLI no.	P273944

Museum purchase, 1923

Obv.

1	5(u) 4(barig) 5(ban_2) še gur	**1**	50 kor, 4 (barig) (and) 5 (ban_2) barley (= 15,290 liters),
2	kišib$_3$ be-li_2-ʾaʾ-zu	**2**	seal (= received): *Bēlī*-azu.
3	ki nu-ur_2-^{d}suen	**3**	(To) the place of *Nūr-Suen*
4	mu-gal_2-la	**4**	(it was) brought.

Rev.

5	[kišib$_3$ ra-ra]-˹dam˺	**5**	The seal is to be rolled (by *Nūr-Suen*).
6	seal	**6**	———————
7	mu na-ru$_2$-a mah / ba-˹du$_3$˺	7	The year (when) the magnificent stele was erected. (ŠS 6)

Seal

i

1	^{d}šu-^{d}suen	**1**	Divine *Šu-Suen*,
2	lugal-kalag-ga	**2**	the mighty king,
3	lugal urim$_5$/^{ki}-ma	**3**	the king of the city of Ur,
4	lugal an-ub-/da limmu$_2$-ba	**4**	the king of the four quarters

ii

1	nu-ur$_2$-^{d}suen	**1**	*Nūr-Suen*,
2	dub-sar	**2**	the scribe,
3	dumu i-di$_3$-er$_3$-ra	**3**	the son of *Idi-erra*,
4	ARAD$_2$-zu	**4**	(is) your servant.

This is a receipt issued by the official *Bēlī*-azu of a substantial amount of barley from an unknown office. The barley is recorded to have been brought to the official *Nūr-Suen*, and it is therefore this official, as the recipient of the barley, who was required to seal the tablet.[8] The receipt would be archived temporarily in the office that delivered the barley to *Bēlī*-azu (and *Nūr-Suen*), and eventually be added to all other expenditures in the office's so-called balanced account at the end of the fiscal year (see comment under **Text 10**).

Bēlī-azu is not normally associated with barley transactions in Puzriš-Dagan, but he is well attested receiving and delivering animals in the center. He was active during two separate periods, from Šulgi 47/i (*BIN* 3 18) to Amar-Suen 5/xii (e.g. *BPOA* 6 18), and from Šu-Suen 2/iii (*TCL* 2 5492) to Šu-Suen 6/ix (*AUCT* 1 970).[9] Typically, *Bēlī*-azu's animal receipts would not require his seal, and as far as I know there are only two examples of a seal impression that could be associated with this official, dated to Šu-Suen 4/ii and 5/x respectively (Tsouparopoulou 2015, no. 52, attested on *BPOA* 6 316 and the unpublished text *ACI* 5: https://cdli.ucla.edu/P370980).

Seal: The tablet was sealed numerous times on the obverse before the tablet was inscribed (pre-sealed) and once on the reverse. The Puzriš-Dagan scribe *Nūr-Suen*, son of *Idi-erra*, is attested with two different seals (Tsouparopoulou 2015, no. 311a-b): in the beginning of his career, which seems to have started sometime in the second half of the reign of Amar-Suen, *Nūr-Suen* used a seal with the inscription: 1. nu-ur$_2$-^{d}suen, 2. dub-sar, 3. dumu i-di$_3$-er$_3$-ra (see *TRU* 3 85 from AS 6/xii). He continued to use this seal regularly until the very end of Šu-Suen 4 (e.g. *PPAC* 4 203 from ŠS 4/xii/26), with an isolated attestation dated to Šu-Suen 5/v/9 (*BPOA* 7 2007).

He is regularly attested with the seal used on our tablet from the seventh month of the fifth year in Šu-Suen's reign (e.g. *Nisaba* 30 69 from Šu-Suen 5/vii/16). *Nūr-Suen* continued to use this

[8] For an administration concerned with accountability this makes sense, and the requirement on *Nūr-Suen* to roll his seal on a receipt issued by *Bēlī*-azu should not be confused with the rare practice of substitution of sealers in Ur III texts, which usually would be indicated on the tablets themselves with the expression: mu kišib$_3$ PN$_1$-še$_3$ kišib$_3$ PN$_2$ (ib$_2$-ra) "on behalf of PN$_1$, the seal of PN$_2$ (was rolled)," (see Mayr 1997, 138-139). For Puzriš-Dagan functionaries sealing on behalf of other officials (or immediate relatives), see Tsouparopoulou 2015, 68.

[9] For the official *Bēlī*-azu, see see Sigrist 1992, 320. Note that according to Sigrist, *Bēlī*-azu can be attested from Šulgi 48 to Amar-Suen 5, and from Amar-Suen 9 to Ibbi-Suen 2.

seal until the end of the second year in the reign of Ibbi-Suen, when he disappears from our records (e.g. *AUCT* 3 71 from Ibbi-Suen 2/xii/25).

Texts from Umma

Text 5

Museum Number: 23.1.7192
Provenience: Umma
Measurements (H × W): 38 × 40 mm
Date: Amar-Suen 1 / viii / -
CDLI no. P112117
Gift to the museum by the Dartmouth Scientific Association, 1923

Obv.

1	2(diš) še-ba za_3-mu	**1** 2 (barig) (barley), the barley allotments (at) the beginning of the year, (= 120 liters)
2	a-ba-ki-ni	**2** (for): Aba-kini,
3	2(barig) al-lu	**3** 2 (barig) (barley), (for): Allu, (= 120 liters),
4	1(barig) 3(ban_2) lu_2-^{d}nin-šubur	**4** 1 (barig) (and) 3 (ban_2) (barley), (for): Lu-Ninšubur, (= 90 liters)
5	2(barig) lugal-ezem	**5** 2 (barig) (barley), (for): Lugal-ezem, (= 120 liters)
6	še-ba kikken sa_2-du_{11}	**6** (these are) the barley allotments of the miller(s), as a regular delivery.

Rev.

7	4(barig) lugal-nir-gal_2 / igi ma_2	**7** 4 (barig) (barley) (for): Lugal-Nirgal, before the boat, (= 240 liters)
8	1(barig) 3(ban_2) e_2-^{geš}ha-lu-<ub_2> ŠIM	**8** 1 (barig) (and) 3 (ban_2) (barley), (for): E-halub, the brewer, (= 90 liters)
9	1(barig) 3(ban_2) ^{d}šara$_2$-i_3-sa_6 <lu_2>-gu	**9** 1 (barig) (and) 3 (ban_2) (barley) (for): Šara-isa, the yarn worker. (= 90 liters)
10	blank space	**10** ————
11	iti e_2-iti-6(diš)	**11** The month of the 6-month house. (viii)
12	mu ^{d}amar-^{d}suen / lugal	**12** The year (when) divine Amar-Suen was king. (AS 1)

The text lists barley allotments for the (female) millers, which were received by the millers' male foremen, as well as the individual allotments to three male craftsmen: a possible shipbuilder (see comment below), a brewer, and a "yarn man" (lu_2-gu). The standard allotment for female millers in the Ur III period was 30 liters of barley per month, which would mean that Aba-kini, Allu and Lugal-ezem received enough barley to compensate 4 millers for one month's work, while Lu-Ninšubur only had 3 millers to compensate for the same period of time.[10]

[10] For a detailed analysis of the management of female millers in the Ur III administration, see Englund 1991.

As the reverse of the tablet clearly demonstrates, Ur III compensations, or salaries, vary considerably according to specialization as well as gender.[11] Male workers would receive (at least) twice as much as female workers, with a standard allotment of 60 liters/month for unskilled labor, and even highly specialized female workers would typically receive less than even the least qualified male workers (Waetzoldt 1987, 121–123).

Line 7: The igi ma_2 (lit. "before the boat") following Lugal-Nirgal's name is uncertain, although a reasonable interpretation would be that Lugal-Nirgal was working in one of Umma's shipyards (mar-sa). It is worth noting in this context that a contemporary shipbuilder (ma_2-gin_2) named Lugal-Nirgal is attested in similar texts from Umma receiving barley salaries (e.g. *BPOA* 1 1753, *AAICAB* 1/2, Ashm. 1971–298 or *Nisaba* 26 35), and it is at least possible that our Lugal-Nirgal refers to this shipbuilder. For the administrative function of the Ur III shipyard, see Alivernini 2013.

Line 9: A "gu" named Šara-isa is also receiving salaries in the Umma text *UCP* 9/2 2 from the first month in Amar-Suen's third year as a king. However, the similar text *JCS* 52 68[12] from AS 5/v demonstrates that the "gu" in these two texts should be understood as <lu_2>-gu "the yarn man," which is a reference to a rare type of textile worker. In the text *UET* 3 1443 from Ur (Amar-Suen 1/xii), enumerating various workers from city of Eridu, the lu_2-gu workers are listed together with the male fullers (guruš $azlag_7$).

For a hand copy of the text, see Foster 1979.

Text 6

Museum Number:	23.1.7188
Provenience:	Umma
Measurements (H × W):	45 × 45 mm
Date:	Amar-Suen $3^?$ / - / -
CDLI no.	P273929

Gift to the museum by the Dartmouth Scientific Association, 1921

Obv.

1 1(u) 5(diš) tug_2 guz-za / du

2 ki i_3-kal-la-ta

3 $kišib_3$ lugal-ur_2-/ra-ni lu$_2$ / ensi$_2$-ka (= PA./TE.SI)

1 15 poor quality "shaggy" textiles,

2 from I-kala,

3 seal (= received): Lugal-urrani, the man of the city governor.

Rev.

4 iti nesag

5 seal

6 mu us_2-sa ur-bi_2-/lum^{ki} ba-hul

5 The month of the Nesag (festival). (iv)

6 ———————

7 The year after the year (when) the city of *Urbilum* was destroyed. (Š 46 / AS 3)

[11] As pointed out by Piotr Steinkeller (2004, 96), these barley allotments should not be thought of as rations merely sustaining the workers in the public households. They exceeded the dietary requirements of their recipients, and we have to agree with Steinkeller that a portion of all these allotments were intended to be used by these workers as commodity money in local markets to acquire foodstuffs and other commodities not provided by the central administration (see comment under **Text 9**).

[12] The second line in this text should be corrected to read: še-ba za_3-mu "the barley allotments (at) the beginning of the year."

Seal (composite)

1	˹lugal˺-ur$_2$-ra-˹ni˺	**1**	Lugal-urrani,
2	˹ARAD$_2$˺ $^{d\text{r}}$nin-e$_2^{?}$˺-[gal$^{?}$]	**2**	the servant of the goddess Ninegal.

This is a sealed receipt of textiles by Lugal-urrani, which would be kept for accounting purposes by I-kala's organization, which in turn provided the textiles (see comments under **Texts 4** and **10**).

The year name in the text is typically used for Šulgi's 46th year as a king, but it could also refer to Amar-Suen 3. The official I-kala (dub-sar dumu lu$_2$-sa$_6$-ga, which would be our man) is attested already from Šulgi 40 (*SAT* 2 253), and transactions of textiles between I-kala and a man named Lugal-urrani appear from Šulgi 48 (*SACT* 2 274 and 275).[13] Therefore, our text could be an early example of such transactions between the two officials. On the other hand, the majority of the references to I-kala and Lugal-urrani, the man of the city governor, are much later, dating to the reigns of Amar-Suen and, in particular, Šu-Suen (e.g. *SACT* 2 284 from ŠS 3/viii). The last known seal impression of Lugal-urrani is found in a receipt of textiles by Ayya-kala, the son of Lugal-urrani, dated to ŠS 6/iv (*NABU* 2002 26 1), and the last seal impression of I-kala dates to IS 2/ix (see the unpublished text *USC* 6596: https://cdli.ucla.edu/P235408), some 28 years after the first appearance of the seal in *SAT* 2 253. With this in mind, a later date of our text to Amar-Suen 3 would in my opinion seem more plausible.

Seal: See the equally fragmentary seal impressions by Lugal-urrani on *AOAT* 250 560 3 (ŠS 5/-), *AUCT* 3 443 (ŠS 5/iii) and *NABU* 2002 26 1 (ŠS 6/iv).

Line 1: For a detailed analysis of this type of "shaggy" woolen textiles, see now Firth and Nosch 2012.

Text 7

Museum Number:	23.2.7213
Provenience:	Umma
Measurements (H × W):	39 × 39 mm
Date:	Amar-Suen 7 / ix / -
CDLI no.	P273942
Museum purchase, 1923	

Obv.

1	2(diš) u$_8$ kur-ra / bar gal$_2$	**1**	2 mountain/foreign ewes with fleece,
2	1(diš) udu nita$_2$ bar gal$_2$	**2**	(and) 1 ram with fleece,
3	ri-ri-ga	**3**	dead of natural causes.
4	ki lu$_2$-^{d}utu-ta	**4**	From Lu-Utu,
5	kišib$_3$ lu$_2$-kal-la	**5**	seal (= received): Lu-kala.

[13] For a comprehensive treatment of the different economic activities of the Umma official I-kala, see now Verderame and Spada 2013.

Rev.

6	seal	**6**	————————
7	iti ^{d}li$_9$-si$_4$	**7**	The month of the goddess Lisin. (ix)
8	mu hu-hu-nu-<ri>^{ki} / ba-hul	**8**	The year (when) the city of *Huhununi*(*m*) was destroyed. (AS 7)

Seal

1	lu$_2$-kal-la	**1**	Lu-kala,
2	dub-sar	**2**	the scribe,
3	dumu ur-e$_{11}$-e šuš$_3$	**3**	the son of Ur-E'e, the chief livestock administrator.

This text belongs to a small group of tablets from Umma where Lu-Utu is delivering dead animals to the scribe Lu-kala. In most cases, the animals are simply described as slaughtered (ba-uš$_2$) but sometimes, as in our text, they are specifically described as dead of natural causes (ri-ri-ga; literally "fallen"), such as by disease or accident. Typically, only slaughtered animals were intended for human consumption in the Ur III period (Wu Yuhong 1996, 72).[14] As far as I know, only in three cases (*BPOA 1* 1318, 1575 and 1641) is Lu-Utu attested delivering animals to Lu-kala that are not specifically described as either slaughtered or dead by natural causes.

The texts in this group can be attested from AS 4/i to ŠS 5/vi, with the vast majority of the attestations coming from the two years Amar-Suen 5 and Amar-Suen 7.[15]

Line 1: According to Marek Stępień (1996, 16–22), the designation kur-ra "of the mountain" should be understood as a general term used for all types of foreign, non-Sumerian sheep in Umma (e.g. the udu gukkal "fat-tailed sheep" or the – in Umma completely unattested – udu šimaški "Persian sheep").

For bar gal$_2$ "with fleece," see Wolfgang Heimpel's comprehensive article from 1993 on sheep and goat terminology in Umma and Puzriš-Dagan.

Seal: The well-known seal of Lu-kala, scribe and son of the chief livestock administrator in Umma Ur-E'e, has been rolled over the front and back of the tablet before it was inscribed (pre-sealed). The seal impression is listed by Rudolf Mayr in his 1997 doctoral dissertation as number 344.2 (the tablet is not impressed with no. 344.1), and as S002932 in the *CDLI*, with a current count of 810 sealed tablets, including this one (https://cdli.ucla.edu/S002932).

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[14] According to Robert McC. Adams (2012, 152), animals dead by natural causes would in the Ur III period be given to dogs and servile women.

[15] Texts in this group include: *BPOA* 1 1575 (AS 4/i), *BPOA* 1 1614 (AS 4/i), *Nisaba* 9 67 (AS 4/i), *BPOA* 7 1743 (AS 4/xiii), *BPOA* 1 1022 (AS 5/i), *BPOA* 1 1470 (AS 5/v), *BPOA* 1 1135 (AS 5/viii), *BPOA* 1 1371 (AS 5/viii), *BPOA* 7 1769 (AS 5/viii), *BPOA* 1 1262 (AS 5/ix), *Syracuse* 182 (AS 5/ix), *BPOA* 1 1628 (AS 5/xi) , *BPOA* 1 1641 (AS 5/xi), *BPOA* 2 2169 (AS 5/xi), *BPOA* 1 817 (AS 5/xii), *BPOA* 1 1318 (AS 5/xii), *BPOA* 7 2924 (AS 6/viii), *MVN* 4 89 (AS 6/v), *BPOA* 1 1308 (AS 6/xii), *BPOA* 2 2328 (AS 7/-), *Nisaba* 9 39 (AS 7/ii), *BPOA* 1 1153 (AS 7/iii), *MVN* 4 86 (AS 7/iii), *Rochester* 198 (AS 7/vi), *BPOA* 1 1468 (AS 7/vii), *MVN* 15 106 (AS 7/vii), *YOS* 18 53 (AS 7/x), *AOS* 32 F29 (AS 7/xi), *PPAC* 4 176 (AS 7/x), *Akkadica* 135/1 84 6 (AS 7/xi), **Text 7** (AS 7/xi), *MVN* 16 1075 (AS 8/i), *MVN* 16 828 (AS 8/iii), *SNAT* 410 (AS 8/vi), *MVN* 16 1222 (AS 9/i), *UTI* 3 2297 (ŠS 1/v), *UTI* 5 3382 (ŠS 3/xi), *MVN* 14 496 (ŠS 3/iii),, *MVN* 16 1580 (ŠS 3/xii), *BPOA* 2 2332 (ŠS 4/xii), *BPOA* 1 1470 (ŠS 5/v), *BPOA* 1 1208 (ŠS 5/vi).

Text 8

Museum Number: 23.1.7185
Provenience: Umma
Measurements (H × W): 60 × 42 mm
Date: Amar-Suen 7 / - / -
CDLI no. P273927
Gift to the museum by the Dartmouth Scientific Association, 1923

Obv.

1	2(geš$_2$) 5(u) 9(diš) geme$_2$ u$_4$ 1(diš)-še$_3$	**1** 179 female workers for one day,
2	ab-ba-gi-na	**2** of Abbagina,
3	2(geš$_2$) 5(u) 9(diš) geme$_2$ u$_4$ 1(diš)-še$_3$	**3** 179 female workers for one day,
4	lugal-ku$_3$-zu	**4** of Lugal-kuzu,
5	2(geš$_2$) 5(u) 9(diš) geme$_2$ u$_4$ 1(diš)-še$_3$	**5** 179 female workers for one day,
6	inim-ku$_3$	**6** of Inim-ku,
7	2(geš$_2$) 5(u) 9(diš) geme$_2$ u$_4$ 1(diš)-še$_3$	**7** 179 female workers for one day,
8	a-ba-ne-ge$_{18}$	**8** of Abba-nege,
9	2(geš$_2$) 5(u) 9(diš) geme$_2$ u$_4$ 1(diš)-še$_3$	**9** 179 female workers for one day,
10	lugal-bad$_3$	**10** of Lugal-bad,

Rev.

11	2(geš$_2$) 5(u) 9(diš) geme$_2$ u$_4$ 1(diš)-še$_3$	**11** 179 female workers for one day,
12	ur-lu$_2$-gu-la	**12** of Ur-lugula,
13	2(geš$_2$) 5(u) 9(diš) geme$_2$ u$_4$ 1(diš)-še$_3$	**13** 179 female workers for one day,
14	ur-^{d}šara$_2$	**14** of Ur-Šara,
15	2(geš$_2$) 5(u) 9(diš) geme$_2$ u$_4$ 1(diš)-še$_3$	**15** 179 female workers for one day,
16	lugal-i$_3$-sa$_6$	**16** of Lugal-isa.
17	ŠU+NIGIN$_2$ 2(geš'u) 3(geš$_2$) 5(u) 2 (diš) geme$_2$ u$_4$ 1(diš)-še$_3$	**17** Total: 1,432 female workers for one day
18	e$_2$-bappir ša$_3$ iri u$_3$ bala-a / gub-ba	**18** stationed (in) the brewery in the city and within the bala obligation.
19	ki šeš-saga(SIG$_5$)-ta	**19** From Šeš-saga,
20	kišib$_3$ ku$_3$-ga-ni	**20** seal (= received): Kugani.
21	blank line	**21** ————————
22	mu hu-uh$_2$-nu-ri^{ki} / ba-hul	**22** The year (when) the city of *Huhununi*(*m*) was destroyed. (AS 7)

Seal (composite)

1	ku$_3$-[ga-ni]	**1** Kugani,
2	˹dub˺-[sar]	**2** the scribe,
3	dumu ur-^{d}[šul-pa-e$_3$]	**3** the son of Ur-Šulpae

This tablet records how low-status female workers, under the supervision of eight different foremen, are being stationed in the brewery in the city of Umma. These women were dependent workers of the large households in Umma, and their work in the brewery was part of the city's rotational obligation to the crown, referred to as the bala (see Sharlach 2004). They were brought to the official Kugani, who sealed the tablet to acknowledge the receipt, by Šeš-saga, who would keep the sealed document as evidence of the expenditure of the labor.

Labor, converted into work days, was treated like any other commodity in the Ur III economy. At the end of the fiscal year, the foremen of these female workers would be held responsible for the output and performance of their workers, and the state's (typically very optimistic) projections would be compared to the actual output/performance of the workers in a so-called balanced account (see comment under **Text 10**). Just as the expenditures of commodities recorded in the receipts of the Ur III would be accounted for in the balanced accounts (see e.g. **Texts 4**, **6** and **7**), so would any lost work days, and the associated loss of productivity. Somewhere in the archives belonging to these eight foremen, the transfers of these work days would be recorded in the form of a receipt sealed by Šeš-saga. Šeš-saga, in turn, would also be subjected to the state's scrutiny, and held accountable for the individual output/performance of the different foremen and their workers.

The conversion of the allocated labor into work days is purely for accounting purposes, and is not a (direct) reflection of the physical number of workers involved. In other words, "10 workers for 1 day" could indeed refer to 10 workers being allocated for a single day, but it could equally well refer to 5 workers for two days, or a single worker allocated for 10 days. The number of workdays in our text is 179, which is a prime number and therefore only divisible by 1 and itself. Since no foreman in the Ur III would supervise as many as 179 workers, this tells us that each of these foremen had one single worker allocated to work in the brewery for a total of 179 days. One cannot help but wonder whether it is purely a coincidence that these 179 work days contributed to the bala would represent exactly one day less than half of the administrative year in the Ur III period (see Englund 1988). Would, for example, the administrative affiliation of an Ur III worker change, if he/she were stationed away from his/her regular workplace for 6 months or longer?

Seal: Kugani's seal (Mayr 1997, no. 260.2; in *CDLI* S002663.4) was impressed all over the tablet before it was inscribed (pre-sealed). Almost nothing remains of the inscription on the seal, and the transliteration is based on a few scattered and fragmentary signs visible on various places of the tablet. Similar sealed tablets, where the scribe Kugani (dub-sar dumu ur-^{d}šul-pa-e$_3$) receives female workers from the foreman Šeš-saga, include *SAT 2* 704 and *Aleppo* 271 from Amar-Suen 2 and 7 respectively.

Text 9

Museum Number:	23.1.7190
Provenience:	Umma
Measurements (H × W):	49 × 37 mm
Date:	Amar-Suen 8 / - / -
CDLI no.	P273931

Gift to the museum by the Dartmouth Scientific Association, 1923

Obv.

1	1(ban$_2$) 3(diš) sila$_3$ i$_3$-nun	**1**	1 (ban$_2$) (and) 3 liters ghee (= 13 liters),
2	kišib$_3$ didli	**2**	(from) various sealed documents.
3	1(ban$_2$) 2(diš) 1/2 sila$_3$ i$_3$-nun	**3**	1 (ban$_2$) (and) 2 1/2 liters ghee (= 12 1/2 liters),
4	ša$_3$-bi 1(diš)-kam	**4**	within (the bala), it is the first (contribution).
5	1(ban$_2$) 4(diš) sila$_3$ i$_3$-nun	**5**	1 (ban$_2$) (and) 4 liters ghee (= 14 liters),
6	ša$_3$-bi 2(diš)-kam	**6**	within (the bala), it is the second

			(contribution).
7	1(ban$_2$) 8(diš) 1/2 sila$_3$ i$_3$-<nun>	**7**	1 (ban$_2$) (and) 8 1/2 liters ghee (= 18 1/2 liters),
8	˹ša$_3$-bi 3(diš)-kam˺	**8**	within (the bala), it is the third (contribution).
Rev.			
9	BI-A bala-a	**9**	??? of the bala obligation.
10	blank line	**10**	————————
11	˹ŠU+NIGIN$_2$˺ 5(ban$_2$) 8 sila$_3$ i$_3$-nun	**11**	Total: 5 (ban$_2$) and 8 liters ghee (= 58 liters).
12	˹ki˺ a-˹tu˺-ta	**12**	From Atu,
13	lu$_2$-˹^{d}˺nin-šubur˺	**13**	Lu-Ninšubur
14	šu ba-ti˹	**14**	received,
15	˹ša$_3$˺ bala-a	**15**	within the bala obligation.
16	mu en eridu^{ki} / ˹ba˺-hun	**16**	The year (when) the en-priestess (of the god Enki) in the city of Eridu was installed. (AS 8)

The text represents a calculation of the total amount of ghee, or clarified butter oil (McCormick 2012, 100), contributed by Atu within the bala obligation of the city of Umma in the year Amar-Suen 8, and received by the official Lu-Ninšubur. The text is not dated by month, but we know that in the 8th year of Amar-Suen's reign, the ša$_3$ bala-a in Umma took place in the 8th month of the year (Sharlach 2004, 325 and comment to **Text 8** above).

Although without a title in our text, there can be no doubt that the ghee delivering Atu refers to the city's chief livestock administrator, who during Amar-Suen's reign held the ultimate responsibility for the large cattle herd of the god Šara in Umma (see Englund 1995 403–408, n. 54; Englund 2003a: §§ 9–10; Dahl 2007, 65, n. 49, with additional references).

The general structure of the tablet, and its function within the administrative and archival apparatus of the Ur III state is interesting, and deserves some further consideration.

The first entry in the text – a contribution by Atu of 13 liters of ghee for the bala obligation – is specifically stated to have been reconstructed from a number of separate entries recorded on "various sealed documents" (kišib$_3$ didli). It reflects the common practice in the Ur III administration of producing final accounts and documents based on primary documents drawn up in connection to specific transactions, or previously written drafts and temporary documents (see Englund 2003b; Widell 2009). Presumably these 13 liters of ghee represented Atu's fourth and final contribution within the year's bala obligation (see below).

The three entries following the first contribution are somewhat more enigmatic. These contributions, ranging from 12.5 to 18.5 liters, are specified as the first, the second and the third "within its" (ša$_3$-bi), and the most reasonable interpretation would be to understand this as "within the bala (obligation)." In other words, the text would outline how Atu's total contribution to the bala amounted to 58 liters (this is clear from lines 11–15), but it would also inform us that Atu provided the ghee to Lu-Ninšubur in four separate batches, each measuring between 12.5 and 18.5 liters. Although not specified in the tablet, it seems reasonable to assume that the three contributions following the first entry in the text also represented consolidations of several smaller contributions of ghee from Atu's dairy farmers, assembled from various primary documents sealed by Atu himself (see further below).

It is not clear why Atu would break up the bala contribution of ghee into smaller batches. A possible explanation might be found in the nature of the ghee itself and its production, and how Atu would have received the ghee from the dairy farmers under his supervision.

Traditional ghee, or clarified butter oil, will preserve very well in a hot and dry climate (see e.g. Gemechu and Tola 2017, 101–102), but the (unsalted) milk/butter used in the production of ghee would spoil within a few days in southern Mesopotamia.[16] For this reason, the production of ghee, whether it was made from (fermented) milk or from (cultured) butter, would be a regular and continuous exercise for the Ur III dairy farmers. The process, which would take about four hours (Englund 1995, 379–380, n. 7), would have to be conducted every couple of days throughout the year.

MVN 15 108 from Amar-Suen 3, a larger consolidated dairy account outlining the activities of Atu (see Englund 1995), certifies that Atu was in charge of the production of 13 different dairy farmers in this year (see also *CDLB* 2003 1 from Amar-Suen 5), who in turn together managed a total of 308 milk cows (Englund 1995: 410). The expected annual production of these milk cows[17] was 1,540 liters of ghee, and 2,310 liters of a type of dry cheese (ga UD*gunû*), which was made from the fermented buttermilk left over from churning butter from cultured or fermented cream, which in the Ur III texts was referred to as ga-SIG$_7$-a (see below). Traditionally, fermented milk, and by extension fermented cream, is produced by leaving raw milk to sour spontaneously at ambient temperature until coagulation occurs, which in the hot climate of southern Mesopotamia would take 1–2 days depending on the time of the year and day/night temperatures. The dominant bacteria in fermented dairy products are progressive type, lactic acid streptococci and lactobacilli, which generally suppress the spoilage and pathogenic organisms effectively.

The ghee and cheese projections in *MVN* 15 108 allow us to roughly calculate the expected milk production of the Ur III cows, although any such calculations will by necessity depend on a variety of assumptions, of which the most important is the fat content in the fresh milk of the Ur III cows. Unfortunately, there is no way this can be determined with any level of confidence, so in order to proceed we will have to simply assume that the fat content in cow's milk in the Ur III period in all likelihood would have been somewhere in the region of 3–5%. The fat content in traditional ghee is about 99% (Gemechu and Tola 2017), but not all of the available fat in the fresh dairy milk would have been used in the production of ghee.[18] As mentioned above, the dry cheese (ga UD*gunû*) was produced from the fermented buttermilk, which typically contains about 0.5–1% fat.[19] Since ghee for all practical purposes can be considered pure fat, the majority of the remaining solids in the ga-SIG$_7$-a (about 7–9%)[20] would be left in the fermented buttermilk, and eventually end up as the dry cheese. In other words, it seems reasonable to calculate that 100 liters of sour milk with 3–5% fat would be required to produce 2–4 liters of ghee, and about 10 liters of dry[21] cheese with a 10% fat content and approximately 35% crude protein (mostly casein). This would give a production ratio of ghee to dry cheese of approximately 3:10 (for sour milk with 4% fat).

However, the standard delivery ratio of ghee to dry cheese in the Ur III administration is well known to have been 2:3 (e.g. 1,540 ghee and 2,310 cheese in *MVN* 15 108). Moreover, as Tohru Ozaki has demonstrated (Gomi 1980, 21), the conversion rates of ga-SIG$_7$-a into ghee and dry cheese were 15:1 and 10:1 respectively (i.e. 2:3), which would match the Ur III annual delivery ratio of 5

[16] Held at sterile conditions at 21° C unsalted butter typically develops slightly off to rancid flavors in 4–7 days (Jacobsen 1937, 14–18). This rancidity is the result of the fat oxidizing, and would be further accelerated by the exposure of the butter to air and the higher average temperatures of southern Mesopotamia.

[17] I.e. the (somewhat optimistic) production target that the Ur III administration would expect and require Atu to have met by the end of the fiscal year.

[18] Cf. Englund (1995, 308), who calculated that 100 liters of milk with 3–5% fat would have produced approximately 3–5 liters of ghee, a calculation that would require that the ga UD*gunû* was an entirely fat-free product.

[19] The fermented buttermilk used to produce the ga UD*gunû* would probably have resembled the North African *lben* or *laban khad* or the Turkish *yayık ayranı* (see Salameh et al. 2016, 260–261; Koçak and Avşar 2010, 127–128).

[20] With the obvious exception of the fat, the solids in the fermented milk would not be significantly affected by the skimming process, and the solids in the ga-SIG$_7$-a would remain approximately the same as in the fermented milk: 4–5% lactose, 2.5–3.5% casein protein and 0.5% whey protein.

[21] I.e. hardened cheese with almost no moisture content.

liter ghee and 7.5 liter cheese per cow, as attested in various entries in e.g. *MVN* 15 108. This conversion rate would require a ga-SIG$_7$-a with a fat content of 7–8%, which would be approximately twice as high as in the raw milk. In other words, the ga-SIG$_7$-a cannot be sour milk, but must be understood as a (low-fat) sour cream in the Ur III period.[22]

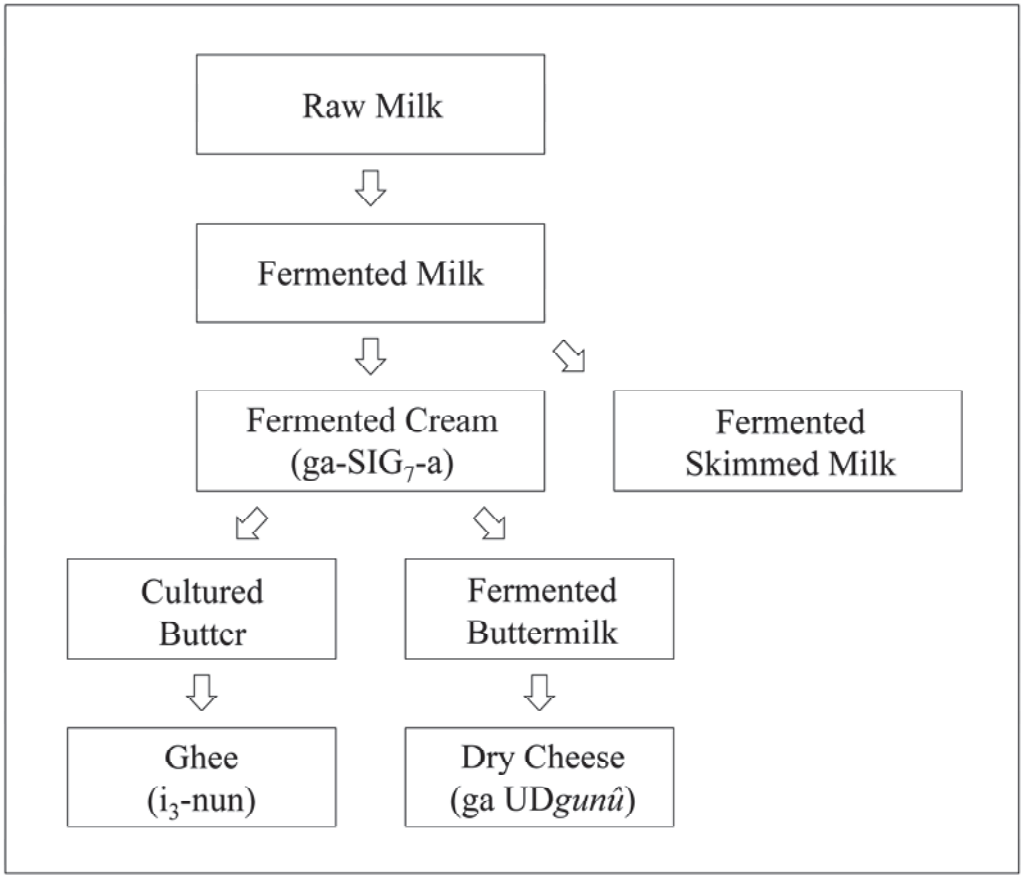

Fig. 1: Ghee and Cheese Production

Traditional fermented skimmed cow's milk contains approximately 1% fat (Hamama 1992, 76). This, in turn, would mean that 100 liters of ga-SIG$_7$-a with a fat content of 8% would require approximately 175–350 liters of fresh milk with a fat content of 3–5%, and for every 100 liters of ga-SIG$_7$-a with 8% fat, the dairy farmer could expect between 75 and 250 liters of fermented skimmed milk with 1% fat content. Since this fermented skimmed milk remains undocumented in the Ur III administrative records, we are likely dealing with what Miguel Civil has referred to as "the herdsman's share," whereby a portion of the yield is kept as compensation by the herdsman (see Stol 1993, 99). Considering the large number of cows in the individual herds under Atu's overall supervision, and the fact that the fermented skimmed milk would have amounted to roughly 40–70% of the total milk production, such "herdsman's shares" would appear very generous. In fact, one might even argue that such large daily allocations of skimmed milk would be difficult, or even impossible, to consume within the households of the individual cow herders under Atu's supervision. Therefore, it is possible that such unofficial allocations of dairy products should be regarded as evidence for the existence of local markets and bartering practices in the Ur III state, in which dairy products and other perishables would be circulated among the general population outside the redistribution system of the centralized administration (see Steinkeller 2004: 95–96).

The 100 liters of ga-SIG$_7$-ga would produce 6–7 liters of ghee with a 99% fat content, and 10 liters of dry cheese with some 10–15% fat. The total (projected) ghee and cheese production of Atu's

[22] Cf. Marten Stol (1993, 101): "Skimming off the cream is perhaps not done with the milk of the cows, sheep and goats that we are interested in. Sour milk is the basis for both butter- and cheese-making."

308 milk cows in *MVN* 15 108 from Amar-Suen 3 (1,540 ghee and 2,310 cheese) would have required a total milk production somewhere in the region of 40,000–80,000 liters, with a per-cow annual milk yield of only some 130–260 liters. Even if we account for an estimated additional 350 liters of milk per cow for the rearing of the calf (Englund 1995, 378), such low yields would be below what one would expect in traditional (non-optimal) husbandry conditions with non-specialized dairy breeds, and it is therefore possible that an additional portion of the milk production was kept as compensation by the herdsmen or local dairy farmers, and was never documented in the official administrative records.

Returning to Atu's contribution of 58 liters of ghee for the bala obligation in Amar-Suen 8, we may conclude that this amount of ghee would have required approximately 1,500–3,000 liters of milk with 3–5% fat content, which was the expected daily yield of approximately 4,200 Ur III cows (the annual expectation of one cow being 5 liters of ghee). Assuming that the Ur III dairy farmers turned their fermented cream into ghee every four days, some 1,000–1,100 cows would be required to produce a sufficient amount of milk for a single batch of 58 liters of ghee. On the other hand, if the 58 liters of ghee were broken up into four separate deliveries, ranging from 12.5 to 18.5 liters (as they are in our text), a total number of approximately 230–340 milk cows should be able to produce the required milk for each delivery. Obviously, each one of these separate deliveries for the bala obligation would have been composed by several smaller deliveries to Atu's office recorded on "various sealed documents" (kišib$_3$ didli), since we know (based on *CDLB* 2003 1 and *MVN* 15 108) that Atu was responsible for the production of some 250–350 milk cows, which would have been herded by 10–15 different dairy farmers.

So how do we then envision Atu's dairy operation in Umma? The local dairy farmers under his supervision would milk their cows and skim the raw milk every day. They would keep the skimmed milk as the "herdsman's share," and possibly barter some (or all) of this milk for other commodities produced in non-institutional households in a local market place.

The dairy farmers would be responsible for the churning of cultured butter from the fermented cream, and for making dry cheese from the fermented butter milk. In order to avoid the development of rancidity the accumulated butter, the farmers would have to turn it into ghee every 3–5 days. They would immediately transfer the finished ghee – together with the dry cheese – to their foreman Atu.

Atu would consolidate all incoming deliveries from his dairy farmers, and without further delay authorize the required transfers of the received dairy products to the different offices within the state administration.

Text 10

Museum Number:	23.1.7181
Provenience:	Umma
Measurements (H × W):	38 × 40 mm
Date:	Šu-Suen 2 / - / -
CDLI no.	P112114

Gift to the museum by the Dartmouth Scientific Association, 1923

Obv.

1	pisan-˹dub˺-ba	**1**	Tablet container (in which)
2	kišib$_3$ ˹dib-ba˺	**2**	the audited sealed documents
3	$^{d\text{r}}$šara$_2$˺-kam / šabra	**3**	of Šarakam, the šabra administrator,
4	i$_3$-gal$_2$	**4**	(are) placed.

Rev.

5	mu ma_2 ^{d}en-/ki ba-ab-du_8	**5**	The year (when) the boat of the god Enki was caulked. (ŠS 2)

The administrative and economic activities of the Ur III officials were documented and archived in yearly accounts, consisting of sections conveniently designated "debits" (sag-nig_2-gur_{11}-ra-kam), "credits" ($ša_3$-bi-ta … zi-ga-am_3), which would be followed by the final "balance" (see Englund 2003b). These accounts at the end of the year are typically referred to as "balanced accounts," although as pointed out by Jacob Dahl (forthcoming), no attempts were made to actually balance these accounts, and they were simply used to calculate the debits and credits of the state's officials and institutions. The total of all the credits would be added to the total of all the debits, producing either a surplus (diri) or a deficit (la_2-ia_3) balance. A surplus in the account would be added to the credit section in the next year's account, while a deficit would carry over as a "remainder" (si-i_3-tum) in the next fiscal year, and be transferred to the debit section (see **Text 12**).

To produce these accounts at the end of the fiscal year, the Ur III administrators relied on large numbers of tablets gathered in the course of the year, recording the economic and administrative activities of the different officials in question (Van De Mieroop 1999/2000). These primary records, which for the most part consisted of shorter sealed receipts, would be temporarily stored in containers referred to as pisan-dub-ba "container of tablet(s)" (see further Tsouparopoulou 2017, 622–624). In order to know which tablets were being stored in which containers, the Ur III archivists ($ša_{13}$-dub-ba) would attach, with a piece of string, small labels to the containers with the subject matters or the responsible officials of the tablets that the containers held. Such labels, which sometimes would cover longer periods spanning several years, are referred to as pisan-dub-ba labels.

Line 2: The pisan-dub-ba labels were used to describe the different types of documents kept in the containers, and it seems likely that the "dib-ba" here should be understood as a reference to the sealed documents in Šarakam's organization that had already been audited (see Cripps 2017, §8.1.12 n. 22).

For a hand copy of the text, see Foster 1979.

Text 11

Museum Number:	23.2.7217
Provenience:	Umma
Measurements (H × W):	24 × 28 mm
Date:	Šu-Suen 6 / ii / 20
CDLI no.	P112110
Museum purchase, 1923	

Obv.

1	5(diš) $sila_3^!$ kaš saga(SIG_5) 3(diš) $sila_3^!$ ninda $5^!$(diš) gin_2 <$šum_2$>	**1**	5 liters fine beer, 3 liters bread (and) 5 shekels onions, (= 5 + 3 + 1/12 liters)
2	3(diš) gin_2 i_3 2(diš) gin_2 naga	**2**	3 shekels oil (and) 2 shekels soda ash (sodium carbonate), (= 50 + 33 1/3 milliliters)
3	ur-^{d}ba-ba_6 sukkal	**3**	(provision for): Ur-Baba, the messenger.
4	5(diš) $sila_3^!$ kaš 3(diš) $sila_3^!$ ninda 5(diš) gin_2 $šum_2$	**4**	5 liters (ordinary) beer, 3 liters bread (and) 5 shekels onions, (= 5 + 3 + 1/12 liters)
5	3(diš) gin_2 i_3 2(diš) gin_2 naga	**5**	3 shekels oil (and) 2 shekels soda ash (sodium carbonate), (= 50 + 33 1/3

		milliliters)
6	nam-ha-ni	**6** (provision for): Namhani.
7	5(diš) sila$_3$$^!$ kaš 3(diš) sila$_3$$^!$ ninda 5(diš) gin$_2$ <šum$_2$>	**7** 5 liters (ordinary) beer, 3 liters bread (and) 5 shekels onions, (= 5 + 3 + 1/12 liters)
8	3(diš) gin$_2$ i$_3$ 2(diš) gin$_2$ naga	**8** 3 shekels oil (and) 2 shekels soda ash (sodium carbonate), (= 50 + 33 1/3 milliliters)
9	aš-ni-u$_{18}$	**9** (provision for): Ašniu.
10	5(diš) sila$_3$$^!$ kaš 3(diš) sila$_3$$^!$ ninda 5(diš) gin$_2$ <šum$_2$>	**10** 5 liters (ordinary) beer, 3 liters bread (and) 5 shekels onions, (= 5 + 3 + 1/12 liters)
11	[2+]1(diš) gin$_2$ i$_3$ 2(diš) gin$_2$ naga	**11** 3 shekels oil (and) 2 shekels soda ash (sodium carbonate), (= 50 + 33 1/3 milliliters)
12	⌜lu$_2$⌝-^{d}utu	**12** (provision for): Lu-Utu.
Rev.		
13	5(diš) sila$_3$$^!$ kaš 3(diš) sila$_3$$^!$ ninda 5(diš) gin$_2$ <šum$_2$>	**13** 5 liters (ordinary) beer, 3 liters bread (and) 5 shekels onions, (= 5 + 3 + 1/12 liters)
14	3(diš) gin$_2$ i$_3$ 2(diš) gin$_2$ naga	**14** 3 shekels oil (and) 2 shekels soda ash (sodium carbonate), (= 50 + 33 1/3 milliliters)
15	šu-^{d}nin-šubur	**15** (provision for): *Šu*-Ninšubur.
16	ŠU+NIGIN$_2$ 5(diš) sila$_3$$^!$ kaš-sig$_5$	**16** Total: 5 liters fine beer.
17	ŠU+NIGIN$_2$ 2(ban$_2$) kaš du	**17** Total: 2 (ban$_2$) ordinary beer. (= 20 liters)
18	ŠU+NIGIN$_2$ 1(ban$_2$) 4(diš) sila$_3$ ninda	**18** Total: 1 (ban$_2$) (and) 5 liters bread. (= 15 liters)
19	ŠU+NIGIN$_2$ 1/3(diš) sila$_3$ 5 gin$_2$ šum$_2$$^!$	**19** Total: 1/3 liters (and) 5 shekels onions. (= 5/12 liters)
20	ŠU+NIGIN$_2$ 1(u) 5(diš) gin$_2$ i$_3$	**20** Total: 15 shekels oil. (= 1/4 liters)
21	ŠU+NIGIN$_2$ 1(u) gin$_2$ naga	**21** Total: 10 shekels soda ash (sodium carbonate). (= 1/6 liters)
22	u$_4$ 2(u)-kam	**22** The 20th day.
23	iti sig$_4$-^{geš}i$_3$-šub$^!$-ba-/gar	**23** The month the brick is placed in the brick mold. (ii)
Left Edge		
24	⌜mu us$_2$-sa bad$_3$ mar-tu⌝ / ba-du$_3$ ⌜mu us$_2$-sa-bi⌝	**24** The second year after the year (when) the Amorite wall was built. (ŠS 6)

This is a so-called “messenger text” from Umma with a list of such provisions as beer, bread, onions, oil and soda ash (sodium carbonate) obtained from the naga plant (prob. *haloxylon salicornicum*). In addition to these products, the messenger texts often include provisions of fish (ku$_6$), and it has been suggested that the soda ash was intended as a softening agent for this fish, which – for practical and logistical reasons – almost certainly would have been dried fish (see Butz 1984, 283–284). An alternative interpretation is that the sodium carbonate would have been used as salt to enhance the taste of the bread, which clearly constituted the main staple in the Mesopotamian messengers’ provisions.

For numerous other examples of messenger texts, see e.g. **Text 13** or the various examples in *Nisaba* 1 and 3.

For a hand copy of the text, see Foster 1979.

Text 12

Museum Number:	23.1.7178
Provenience:	Umma
Measurements (H × W):	35 × 29 mm
Date:	Šu-Suen 7 / - / -
CDLI no.	P273922

Gift to the museum by the Dartmouth Scientific Association, 1923

Obv.

1	1(u) 4(aš) še gur	**1**	14 kor barley, (= 4,200 liters)
2	la_2-ia_3 su-ga	**2**	arrear (from previous year[s]), repaid.
3	ki ^{d}en-lil_2-la_2-ta	**3**	From Enlila,
4	lu_2-dingir-ra / šabra	**4**	Lu-dingira, the šabra administrator,

Rev.

5	šu ba-ti	**5**	received.
6	mu ^{d}šu-^{d}suen / lugal $urim_5^{ki}$-/ma-ke_4	**6**	The year (when) divine *Šu-Suen*, the king of the city of Ur,
7	ma-da za-ab-/ša-li^{ki} mu-/hul	**7**	destroyed the land of the city of *Zabšali*(*m*). (ŠS 7)

If an Ur III official was unable to meet the state's annual production target, which would be calculated on an established (but often unrealistic) formula based on the official's access to state resources, such as labor, livestock, raw materials, agricultural land, etc., he would be personally liable for the shortfall. As becomes abundantly clear from our recovered balanced accounts, few officials were able to meet the set targets, and since the deficits from the previous year(s) would roll over into the new fiscal year, and be added to that year's production target (see **Text 10**), many mid-level Ur III officials would find themselves in ever-increasing levels of debt to the state. Defaulting on such public debts would have dire consequences, and could lead to the confiscation of private property, as well as imprisonment, or even the sale of family members of the indebted official into slavery (Waetzoldt and Sigrist 1993; Wilcke 2005). Our text represents a rare type of receipt, in which an official is settling the deficit carried forward from the previous year(s).

Text 13

Museum Number: 23.1.7208
Provenience: Umma
Measurements (H × W): 27 × 21 mm
Date: - / iii / 28
CDLI no. P273937
Gift to the museum by the Dartmouth Scientific Association, 1923

Obv.

1	5(diš) sila$_3$ kaš 5(diš) sila$_3$ ninda 2(diš) ˹sa šum$_2$˺	**1** 5 liters beer, 5 liters bread (and) 2 bundles onion,
2	3(diš) gin$_2$ i$_3$ 2(diš) ˹gin$_2$ naga˺	**2** 3 shekels oil (and) 2 shekels soda ash (sodium carbonate), (= 50 + 33 1/3 milliliters)
3	šeš-mu	**3** (provision for): Šeš-mu.
4	5(diš) sila$_3$ kaš 5(diš) sila$_3$ ninda 2(diš) ˹sa šum$_2$˺	**4** 5 liters beer, 5 liters bread (and) 2 bundles onion,
5	3(diš) gin$_2$ i$_3$ 2(diš) gin$_2$ naga	**5** 3 shekels oil (and) 2 shekels soda ash (sodium carbonate), (= 50 + 33 1/3 milliliters)
6	˹lu$_2$˺-dingir-˹ra˺	**6** (provision for): Lu-dingira.
7	5(diš) ˹sila$_3$ kaš˺ 5(diš) ˹sila$_3$ ninda˺ 2(diš) sa ˹šum$_2$˺	**7** 5 liters beer, 5 liters bread (and) 2 bundles onion,
8	˹3(diš) gin$_2$ i$_3$ 2(diš) gin$_2$ naga˺	**8** 3 shekels oil (and) 2 shekels soda ash (sodium carbonate), (= 50 + 33 1/3 milliliters)
9	šeš-a-ni	**9** (provision for): Šešani.
10	˹2(ban$_2$) kaš˺ 2(ban$_2$) ˹ninda 2(diš) sa šum$_2$˺	**10** 2 (ban$_2$) beer, 2 (ban$_2$) bread (and) 2 bundles onion, (= 20 + 20 liters)
11	˹1(u)˺ gin$_2$ i$_3$ 2(diš) gin$_2$ [naga]	**11** 10 shekels oil (and) 2 shekels soda ash (sodium carbonate), (= 1/6 liters + 33 1/3 milliliters)
12	˹ze$_2$-ze$_2$˺	**12** (provision for): Zeze.

Rev.

13	˹5(diš) sila$_3$ kaš 5(diš) sila$_3$˺ [ninda] ˹2(diš)˺ [sa šum$_2$]	**13** 5 liters beer, 5 liters bread (and) 2 bundles onion,
14	3(diš) ˹gin$_2$ i$_3$ 2(diš) gin$_2$ naga˺	**14** 3 shekels oil (and) 2 shekels soda ash (sodium carbonate), (= 50 + 33 1/3 milliliters)
15	a-bi$_2$-a-ti	**15** (provision for): *Abiati*.
16	3(diš) ˹sila$_3$ kaš˺ 2(diš) sila$_3$ ninda 2(diš) ˹sa šum$_2$˺	**16** 3 liters beer, 2 liters bread (and) 2 bundles onion,
17	3(diš) gin$_2$ i$_3$ 2(diš) gin$_2$ naga	**17** 3 shekels oil (and) 2 shekels soda ash (sodium carbonate), (= 50 + 33 1/3 milliliters)
18	nu-ur$_2$-eš$_4$-˹dar˺	**18** (provision for): *Nūr-Ešdar*.
19	3(diš) sila$_3$ ˹kaš˺ 2(diš) sila$_3$ ninda 2(diš) ˹sa	**19** 3 liters beer, 2 liters bread (and) 2 bundles

	šum$_2$˺	onion,
20	3(diš) ˹gin$_2$ i$_3$˺ 2(diš) ˹gin$_2$˺ naga	**20** 3 shekels oil (and) 2 shekels soda ash (sodium carbonate), (= 50 + 33 1/3 milliliters)
21	^{d}˹suen˺-ba-ni	**21** (provision for): *Suen-bāni*.
22	˹ŠU+NIGIN$_2$˺ 4(ban$_2$) 6 sila$_3$ ˹kaš˺ 4(ban$_2$) ˹4 sila$_3$˺ [ninda$^{?}$] / 1(u) 4(diš) ˹sa šum$_2$˺	**22** Total: 4 (ban$_2$) (and) 6 liters beer, 4 (ban$_2$) (and) 4 liters bread, 14 bundles onion, (= 46 + 44 liters)
23	˹1/3(diš)˺ sila$_3$ 8(diš) ˹gin$_2$ i$_3$˺	**23** 1/3 liter (and) 8 shekels oil (= 466 2/3 milliliters)
24	1(u) 4(diš) gin$_2$ naga	**24** (and) 14 shekels soda ash (sodium carbonate). (= 233 1/3 milliliters)

Left Edge

25	u$_4$ 2(u) 8(diš)-kam iti še-kar-/ra-gal$_2$-la	**25** The 28th day (in) the month the barley is placed at the quay. (iii)

This is another messenger text from Umma, listing food provisions to various individuals traveling between the cities in the heartland of the state and more peripheral areas, primarily to the east- and northeast of Babylonia (see **Text 11** with further references). The calculated totals of the beer and different food products in lines 22–24 are correct.

Text 14

Museum Number:	23.1.7186
Provenience:	Umma
Measurements (H × W):	52 × 20 mm
Date:	- / - / -
CDLI no.	P112113

Gift to the museum by the Dartmouth Scientific Association, 1923

Obv.

broken		…
1'	[a$_2$ erin$_2$-na]-bi u$_4$ [x-kam]	**1'** (equals): x work gang days.
2'	[x] gan$_2$ geš-ur$_3$-ra [a-ra$_2$ x]	**2'** x of land harrowed x times,
3'	a$_2$ erin$_2$-na-bi u$_4$ 5(u) 4(diš)-kam	**3'** (equals): 54 work gang days.
4'	2(eše$_3$) 3(iku) gan$_2$ geš-ur$_3$-ra a-ra$_2$ 2(diš)	**4'** 15 iku of land harrowed two times, (= 5.4 hectares)
5'	a$_2$ erin$_2$-na-bi u$_4$ 2(u)-kam	**5'** (equals): 20 work gang days.
6'	2(geš'u) 6(geš$_2$) 1(u) 5(diš) sar gi zi$_x$(SIG$_7$)-a / 1(u) 5(diš) sar-ta	**6'** 1,575 sar of cut reed, each (erin worker): 15 sar (per day), (= 5.7 hectares; 540 m^2/day)
7'	a$_2$-bi u$_4$ 1(geš$_2$) 4(u) 5(diš)-kam	**7'** their labor is 105 (work) days.
8'	1(geš'u) 1(geš$_2$) 3(u) sar gi zi$_x$(SIG$_7$)-a 2(u) sar-ta	**8'** 690 sar of cut reed, each (erin worker): 20 sar (per day), (= 2.5 hectares; 720 m^2/day)
9'	a$_2$-bi u$_4$ 3(u) 4(diš) 1/2(diš)-kam	**9'** their labor is 34 1/2 (work) days.

10'	1(geš'u) 3(geš$_2$) 3(u) sar u$_2$-$^{<geš>}$hašhur bu$_3$-ra / 1(u) sar-ta	**10'** 810 sar of uprooted "apple grass," each (erin worker): 10 sar (per day), (= 2.9 hectares; 360 m^2/day)
11'	a$_2$-bi u$_4$ 1(geš$_2$) 2(u) 1(diš)-kam	**11'** their labor is 81 (work) days.
12'	1(geš'u) 6(geš$_2$) 4(u) 8(diš) sar u$_2$-^{geš}hašhur bu$_3$-/ra 1(u) 2(diš) sar-ta	**12'** 1,008 sar of uprooted "apple grass," each (erin worker): 12 sar (per day), (= 3.6 hectares; 432 m^2/day)
13'	a$_2$-bi u$_4$ 1(geš$_2$) 2(u) 4(diš)-kam	**13'** their labor is 84 (work) days.
14'	8(geš$_2$) sar u$_2$-^{geš}hašhur bu$_3$-ra / 1(u) 5(diš) sar-ta	**14'** 480 sar of uprooted "apple grass," each (erin worker): 15 sar (per day), (= 1.7 hectares; 540 m^2/day)
15'	a$_2$-bi u$_4$ 3(u) 2(diš)-kam	**15'** their labor is 32 (work) days.
Rev.		
16'	3(geš$_2$) 2(diš) sar al 7(diš) sar	**16'** 182 sar dug (earth), each (erin worker): 7 sar (per day), (= 0.7 hectares; 252 m^2/day)
17'	a$_2$-bi u$_4$ 2(u) 6(diš)-kam	**17'** their labor is 26 (work) days.
18'	1(geš'u) 7(geš$_2$) 2(u) sar gi zi$_x$(SIG$_7$)-a 1(u) 2(diš) sar-/ta	**18'** 1,040 sar of cut reed, each (erin worker): 12 sar (per day), (= 3.7 hectares; 432 m^2/day)
19'	a$_2$-bi u$_4$ 1(geš$_2$) 2(u) 6(diš)-kam	**19'** their labor is 86 (work) days.
20'	2(geš'u) 2(geš$_2$) 2(u) 4(diš) sar ^{geš}dih$_3$ ku$_5$-a / 1(u) 2(diš) sar-ta	**20'** 1,344 sar of cut thorny weed, each (erin worker): 12 sar (per day), (= 4.8 hectares; 432 m^2/day)
21'	a$_2$-bi u$_4$ 1(geš$_2$) 5(u) 2(u)-kam	**21'** their labor is 112 (work) days.
22'	1(geš'u) 3(u) sar ^{geš}dih$_3$ ku$_5$-a / 1(u) 5(diš) sar-ta	**22'** 630 sar of cut thorny weed, each (erin worker): 15 sar (per day), (= 2.3 hectares; 540 m^2/day)
23'	a$_2$-bi u$_4$ 4(u) 2(diš)-kam	**23'** their labor is 42 (work) days.
24'	[...] guruš gi keš$_2$-ra$_2$	**24'** ... guruš workers bound reed,
25'	[...] lu$_2$ hun-ga$_2$ 6(diš) sila$_3$-ta	**25'** ... hired workers: 6 liters each,
26'	[...] 5(diš) guruš ša$_3$-gu$_4$ u$_3$ DU	**26'** ... 5 guruš workers, ox drivers, and ???
27'	[a]-ša$_3$-ge kin ak	**27'** The field work done
28'	a-ša$_3$ a-geštin-na gan$_2$$^{?}$ [...]	**28'** (in) the field of Ageština, plot$^{?}$ …
29'	ugula ur-X-[…]	**29'** The foreman: Ur-…
30'	[kišib$_3$ ur-am$_3$-ma]	**30'** Sealed by Ur-amma.
31'	[mu … … …]	**31'** The year (when) … …
Seal		
1	ur-am$_3$-ma	**1** Ur-amma,
2	dub-sar	**2** the scribe,
3	dumu na-silim	**3** the son of Nasilim.

This tablet from Umma is listing the number of work days required by different types of low-status male workers for maintenance work in the large Umma field Ageština (Pettinato 1967, no. 40). The heavy agricultural tasks required from the workers including harrowing the fields, digging earth, cutting reed, and uprooting/removing "apple grass" (u$_2$-^{geš}hašhur-ra; probably a kind of weed) and a

thorny weed referred to as ^{geš}dih$_3$. For the cutting or uprooting of reed and other types of plants/weed in the Ur III period, and the different meanings in these contexts of the Sumerian verbs bu$_3$,r, ku$_5$.r and zi$_2$/zi$_x$(SIG$_7$), see Molina and Such-Gutiérrez 2004.

The beginning and the end of the tablet are completely broken off, and it is not possible to offer a date for the text. Ur-amma, the scribe and son of Nasalim, whose seal is vaguely impressed all over the tablet, enjoyed a long career in Umma, and is first attested receiving workers for agricultural tasks in Šulgi 42/v, using a seal dedicated to the Umma governor Ur-Lisi (*Kress* 34 [unpublished]: https://cdli.ucla.edu/P315274; see also *MVN* 13 852 from the same year). The seal impression found on our tablet is attested from Šulgi 47 (*Nisaba* 23 2), and Ur-amma continued to use this seal for another 17 years, until the 7th year in the reign of Šu-Suen (*SAT 3* 1840).

Lines 2'–3': Some vague, obscure signs found between the lines seem to be unrelated to the text (i.e. 3(diš) 4(aš) 1(aš) 1(u) 1(aš)). The end of line 2' is broken, but it is clear that the scribe would have had enough space on the tablet to finish his sentence without having to continue below the line.

Lines 4'–5': 15 iku of land harrowed twice by 20 workers. Thus, one worker was able to harrow 1 1/2 iku of land per day (about 0.54 hectares). As Kazuya Maekawa has demonstrated (1990, 119), the expression a-ra$_2$ 1(diš), a-ra$_2$ 2(diš), etc. refers to the number of times the land was harrowed, and should not be translated "the first time," "the second time," etc. the land was harrowed.

Lines 18'–19': The calculation here does not entirely add up, and the cutting of 1,040 sar of cut reed at a rate of 12 sar/day would require 86 2/3 days, and not 86 days.

For a hand copy of the text, see Foster 1979.

Text with Unknown Provenience

Text 15

Museum Number:	23.2.7218
Provenience:	Unknown
Measurements (H × W):	41 × 36 mm
Date:	- / - / -
CDLI no.	P273945

Museum purchase, 1923

Obv.

1	[2(aš)] gu$_2$ 2(u) 6(diš) ma-⌜na⌝ siki	**1**	[2$^?$] talents (and) 26 minas of wool, (= 73 kg)
2	sag nig$_2$-gur$_{11}$-ra	**2**	(to) the capital fund,
3	ki e$_2$-kišib$_3$-ba-ta / e$_3$-a-ke$_4$	**3**	from the place of the store house, of Ea,
4	dah-e-dam	**4**	it is to be added.
5	2(aš) gu$_2$ 2(u) 6(diš) ma-na <siki>	**5**	2 talents (and) 26 minas of wool, (= 73 kg)
6	sag nig$_2$-gur$_{11}$-ra-ke$_4$	**6**	(to) the capital fund,

Rev.

7	dah-e-dam	**7**	it is to be added.
8	gaba-ri	**8**	(This is a) duplicate.

This is a copy (gaba-ri) of a document outlining how wool was withdrawn from the (central) store house in an unknown city (see Widell 2018), and added to the capital fund of an official named Ea.

Line 7: For dah "to add, increase," see *CAD* and *AHw* under *aṣābum* and *waṣābum*, respectively. Note, also, two similar texts from Umma where barley (*AAS* 95 from Š 47) and a more modest amount of wool (*BIN* 5 343) were to be added to the "capital fund" (sag nig_2-gur_{11}-ra).

Final Remarks

The various archives of the Ur III state have left us with an abundance of written documentation, offering detailed insights into a number of fascinating aspects of this ancient society at the end of the third millennium. The regularly updated online databases of cuneiform tablets, such as the *Database of Neo-Sumerian Texts* (http://bdtns.filol.csic.es) or the *Cuneiform Digital Library Initiative* (https://cdli.ucla.edu) currently offer scholars and students access to approximately 100,000 Ur III texts, most of which can be dated to a short period of only a few decades. These texts were drawn up by professional scribes within the administrative realm of the state, and were typically archived in the large socio-economic units, referred to by Sumerologists as public or urban households (see Widell 2018).

This article offers translations and interpretations of 15 tablets kept in the Hood Museum of Art at Dartmouth College. The texts from the Ur III period are rarely translated, and few of the many texts available to us have been subjected to any form of interpretation or analysis, beyond the counting of animals or other commodities going in and out of some institution. Yet, our understanding of all aspects of this ancient society depends on the careful interpretations of individual texts. Every Ur III text performed – in some capacity – an administrative and archival function within a complicated accounting system, and any attempt at analyzing and interpreting a single tablet requires careful consideration of the administrative system as a whole. Each Ur III text only has meaning when interpreted within a particular administrative and archival context (Gelb 1967). In turn, the reconstruction of these contexts within the wider historiography of the Ur III state economy and polity is established from the prosopographical study of the text corpus.

In contrast to the usual text edition, this article offers little philological commentary. Rather the administrative context for each text is established, and its prosopographical connexions with other Ur III texts are identified. By and large, these texts reinforce an established understanding of the administrative and economic structures of the Ur III state, while also offering further information on some of the individuals living there and working within its administration.

Indices

Personal Names

nu-ur$_2$-^{d}*suen*
(1) ki *nu-ur*$_2$-^{d}*suen* mu-gal$_2$-la 4:3-4
(2) *nu-ur*$_2$-^{d}*suen* dub-sar dumu *i-di*$_3$-*er*$_3$-*ra* 4:seal

^{d}*suen-ba-ni*
^{d}*suen-ba-ni* 13:21

^{d}šara$_2$-i$_3$-sa$_6$
^{d}šara$_2$-i$_3$-sa$_6$ <lu$_2$>-gu 5:9

^{d}šara$_2$-kam
^{d}šara$_2$-kam šabra 10:3

šeš-a-ni
šeš-a-ni 13:9

šeš-mu
šeš-mu 13:3

šeš-saga(SIG$_5$)
ki šeš-saga(SIG$_5$)-ta 8:19

šu-^{d}nin-šubur
šu-^{d}nin-šubur 11:15

^{d}šul-gi-a-a-mu
^{d}šul-gi-a-a-mu i$_3$-dab$_5$ 3:6

ur-am$_3$-ma
(1) kišib$_3$ ur-am$_3$-ma 14:30'
(2) ur-am$_3$-ma dub-sar dumu na-DI 14:seal

ur-^{d}ba-ba$_6$
ur-^{d}ba-ba$_6$ sukkal 11:3

ur-e$_{11}$-e
lu$_2$-kal-la dub-sar dumu ur-e$_{11}$-e šuš$_3$ 7:seal

ur-lu$_2$-gu-la
ur-lu$_2$-gu-la 8:12

ur-^{d}šara$_2$
ur-^{d}šara$_2$ 8:14

ur-^{d}šul-pa-e$_3$
ku$_3$-ga-ni dub-sar dumu ur-^{d}šul-pa-e$_3$ 8:seal

ur-...
ugula ur-... 14:29'

ze$_2$-ze$_2$
ze$_2$-ze$_2$ 13:12

Deities, Deified Kings and Toponyms

a-ša$_3$ a-geštin-na
a-ša$_3$ a-geštin-na 14:28'

^{d}amar-^{d}suen
^{d}amar-^{d}suen lugal 3:9; 5:12

bad$_3$ mar-tu
bad$_3$ mar-tu ba-du$_3$ 11:24

e$_2$-bappir
e$_2$-bappir ša$_3$ iri 8:18

e$_2$-iti-6(diš)
iti e$_2$-iti-6(diš) 5:11

e$_2$-kišib$_3$-ba
ki e$_2$-kišib$_3$-ba-ta 15:3

^{d}en-ki
ma$_2$ ^{d}en-ki ba-ab-du$_8$ 10:5

eridu^{ki}
en eridu^{ki} ba-hun 9:16

hu-uh$_2$/*hu-nu-ri*^{ki}
hu-uh$_2$/*hu-nu-ri*^{ki} …-hul 2:15; 8:22

kar
iti še-kar-ra-gal$_2$-la 13:25

^{d}li$_9$-si$_4$
iti ^{d}li$_9$-si$_4$ 7:7

lu-lu-bu^{ki}
lu-lu-bu^{ki} …-hul 2:15

^{d}nin-e$_2^{?}$-gal$^{?}$
ARAD$_2$ ^{d}nin-e$_2^{?}$-gal$^{?}$ 6:seal

si-mu-ru-um^{ki}
si-mu-ru-um^{ki} …-hul 2:15

^{d}*šu*-^{d}*suen*
^{d}*šu*-^{d}*suen* lugal 4:seal; 12:6

ur-bi$_2$*-lum*^{ki}
ur-bi$_2$*-lum*^{ki} …-hul 1:7, 7 (envelope); 3:9; 6:6

urim$_5^{ki}$
lugal urim$_5^{ki}$-ma 4:seal; 12:6

za-ab-ša-li^{ki}
ma-da *za-ab-ša-li*^{ki} …-hul 12:7

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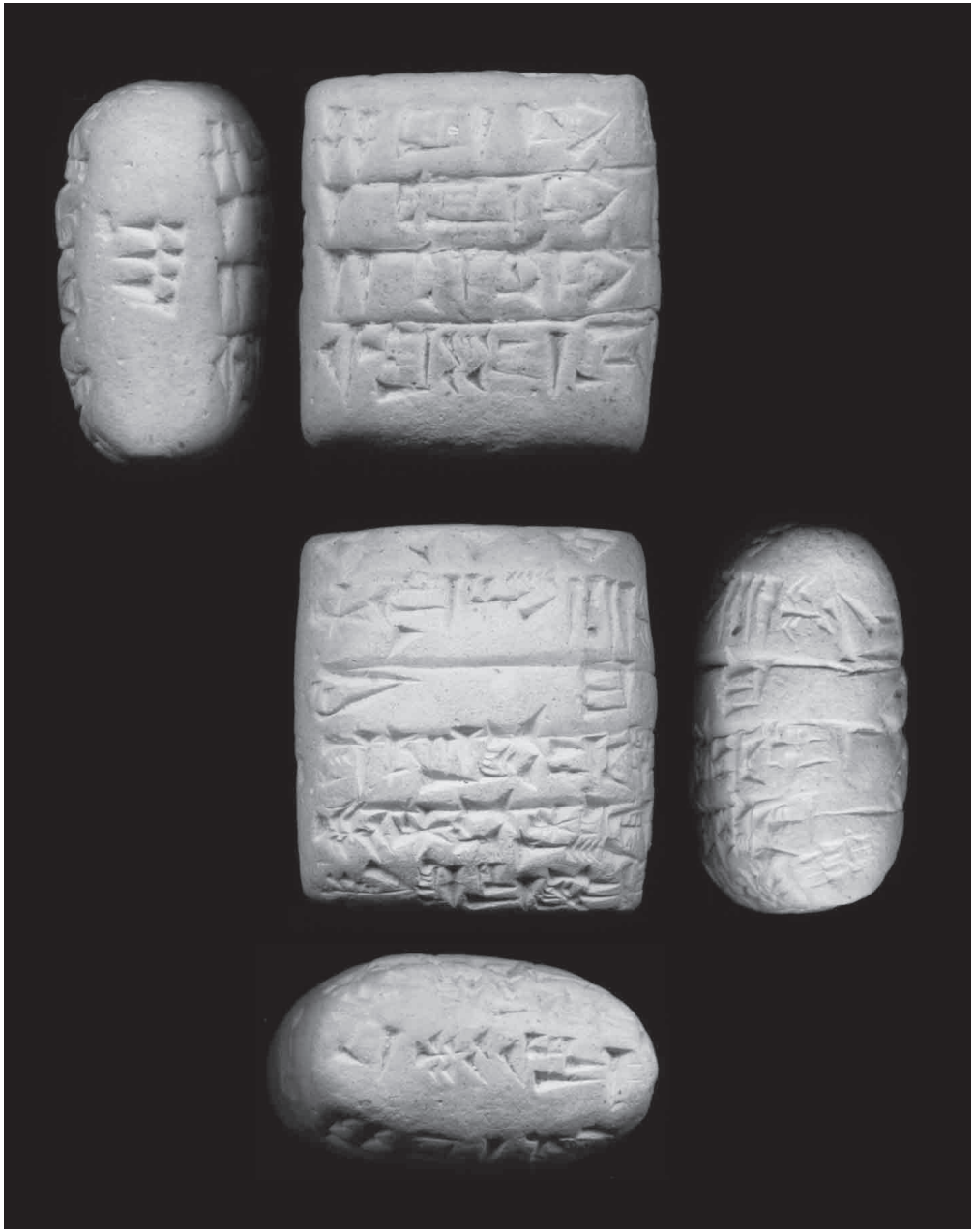
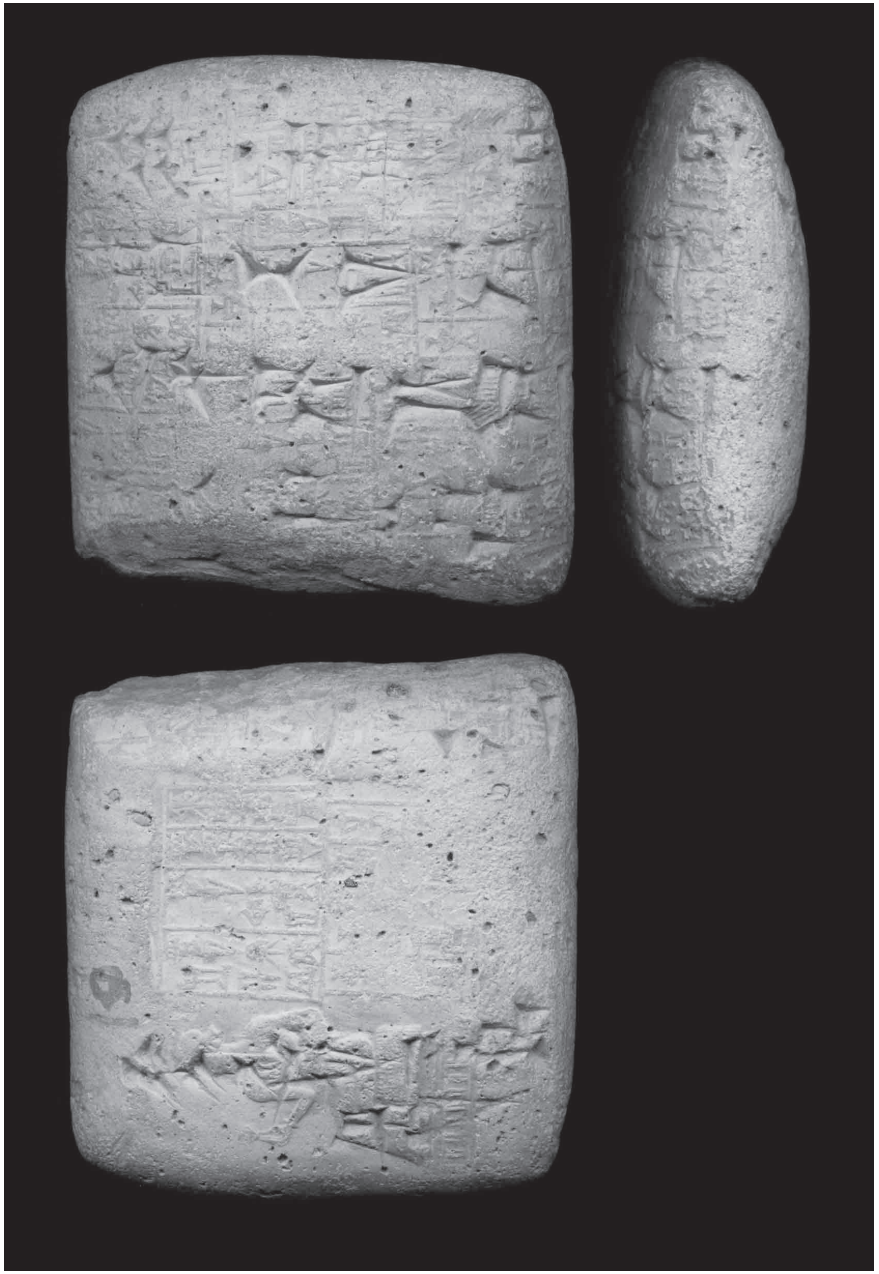
Tablet 1

Tablet 2



Tablet 3



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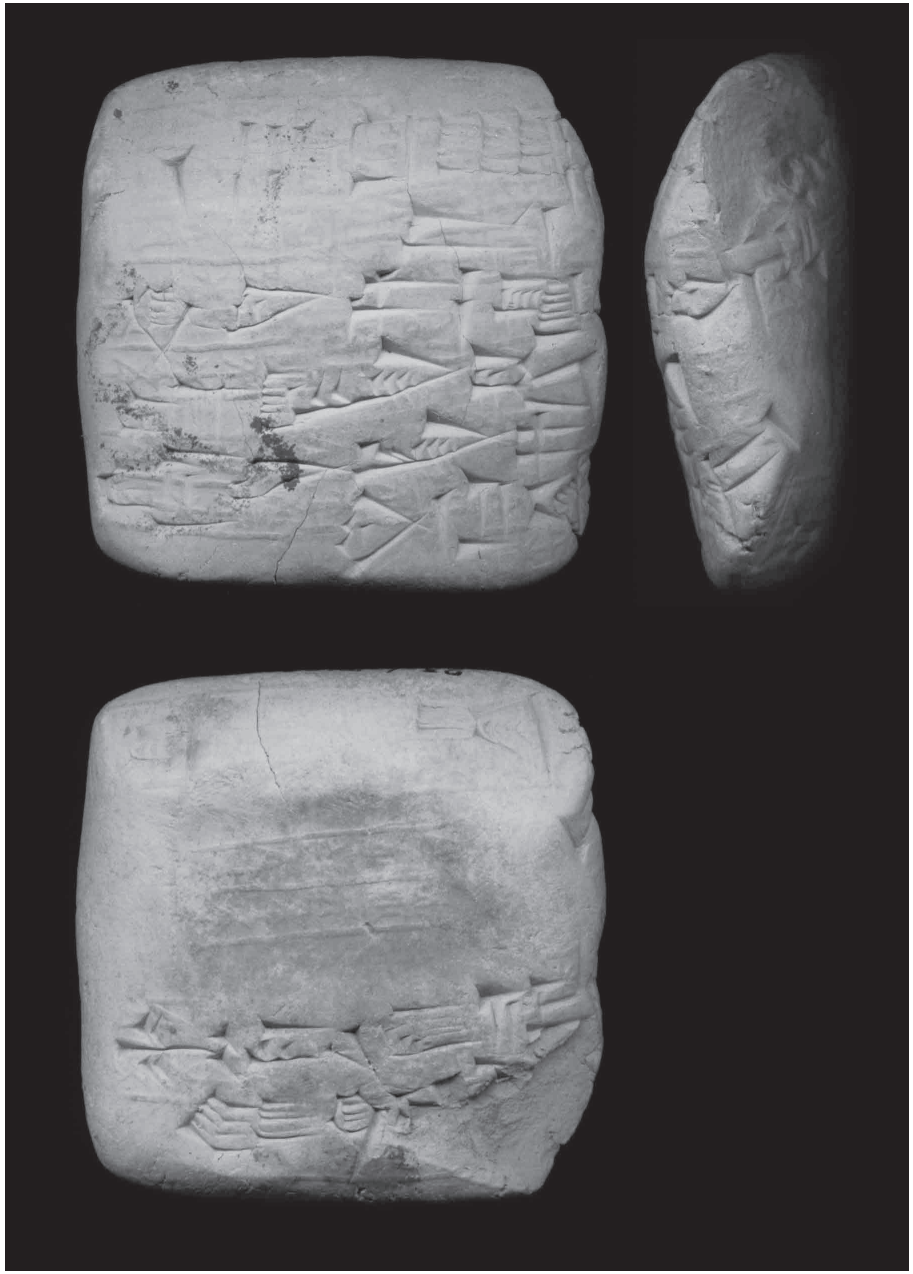
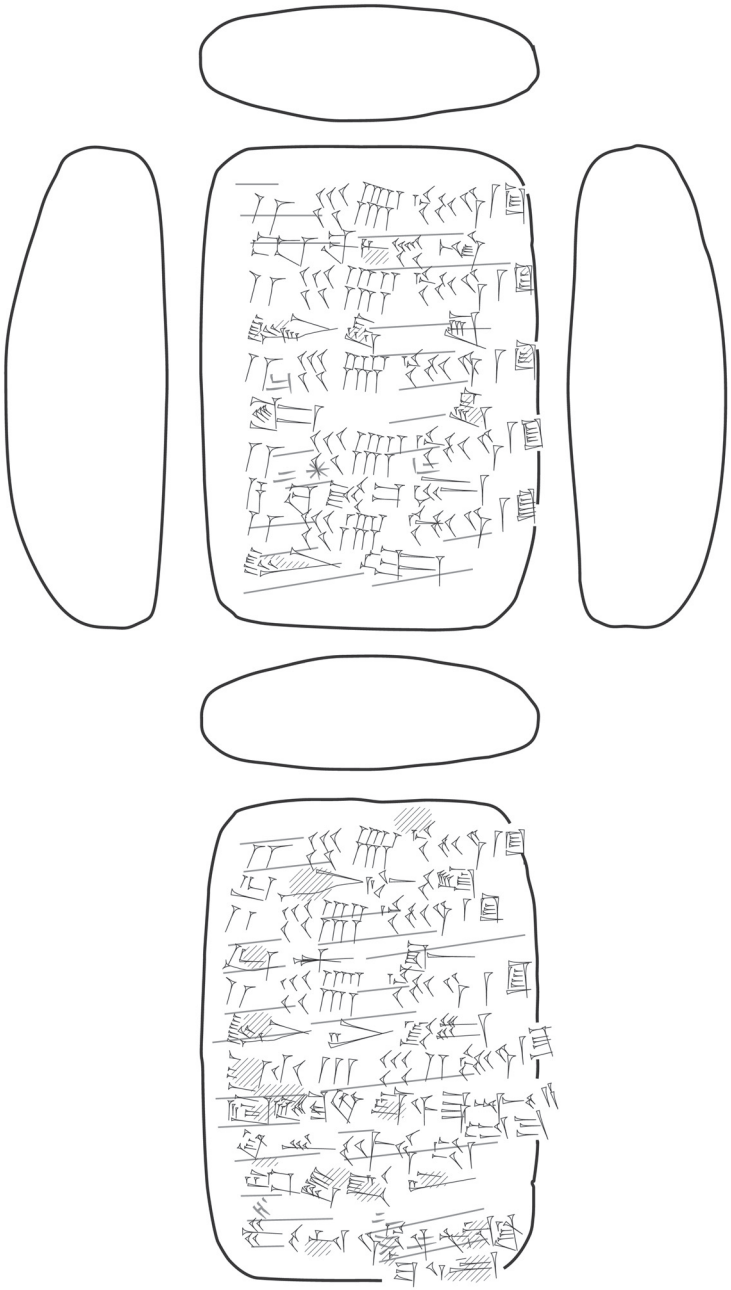


Tablet 6

Tablet 7



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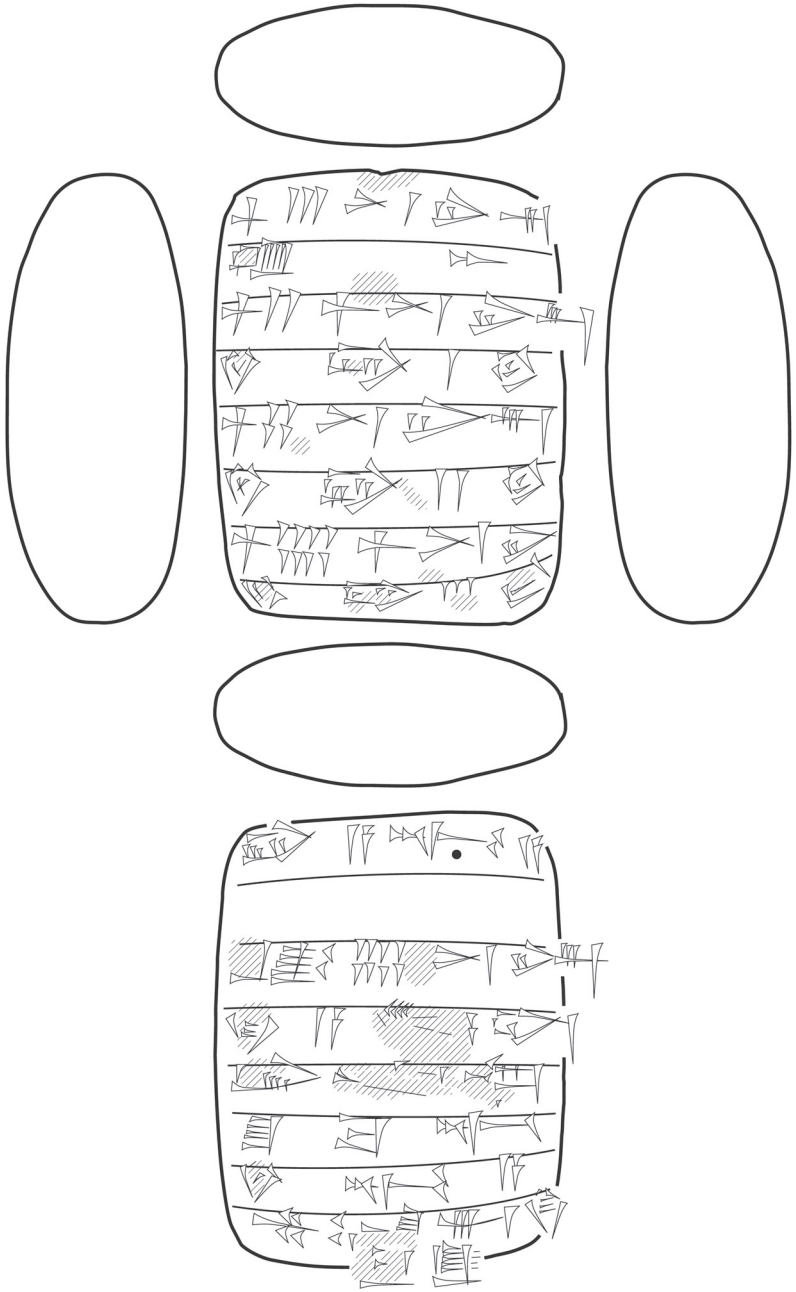

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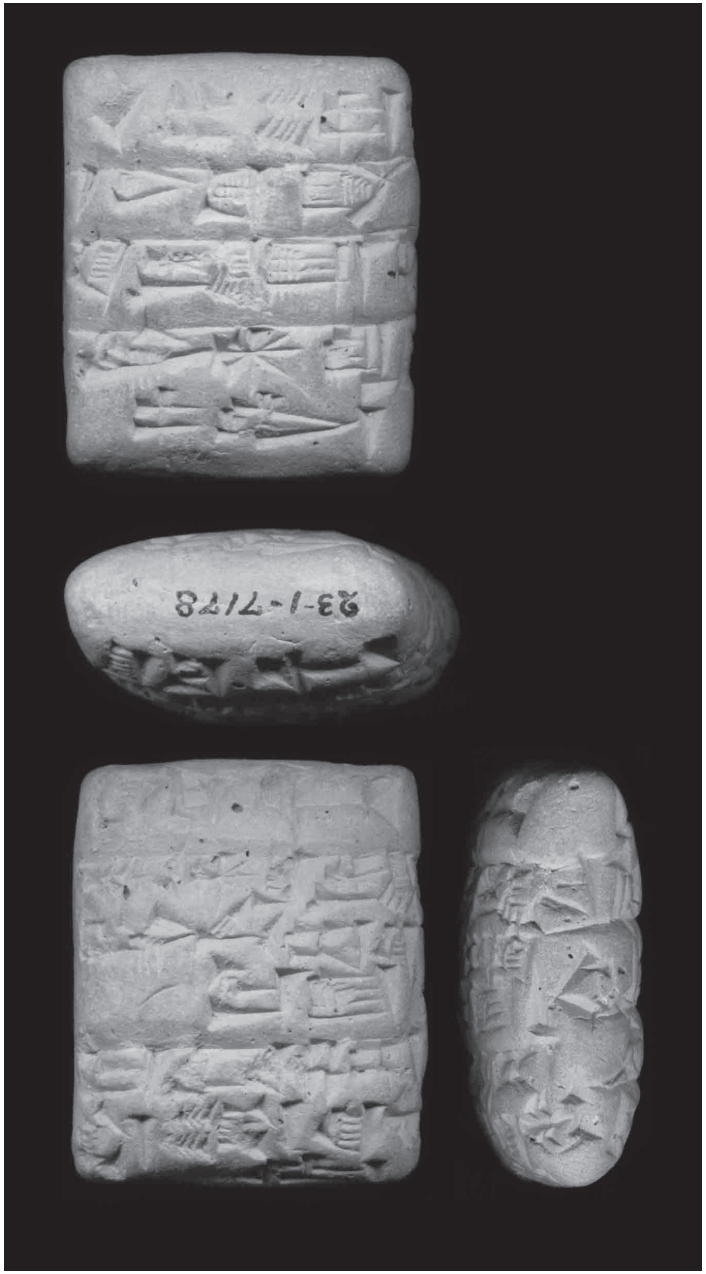
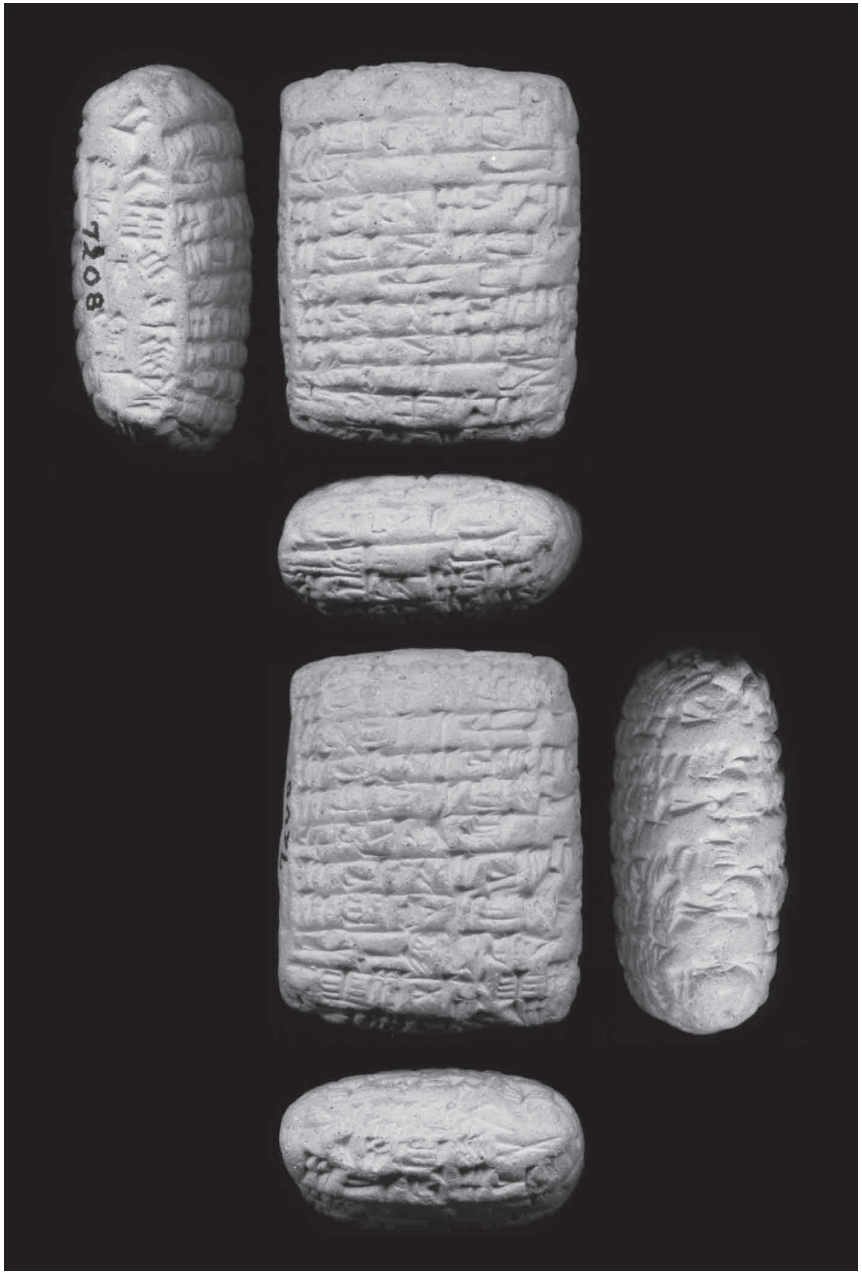
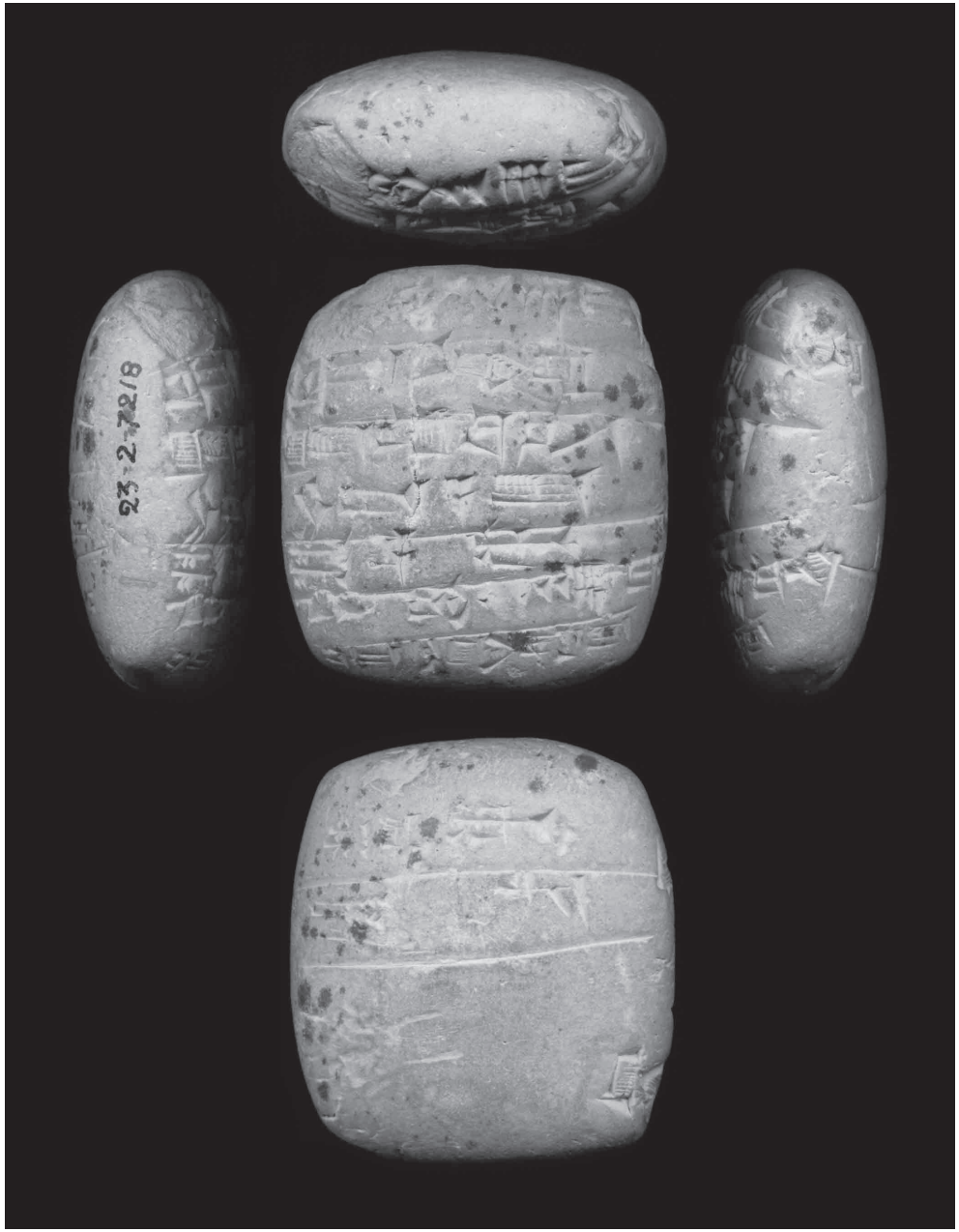


Tablet 12



Tablet 13



Tablet 15